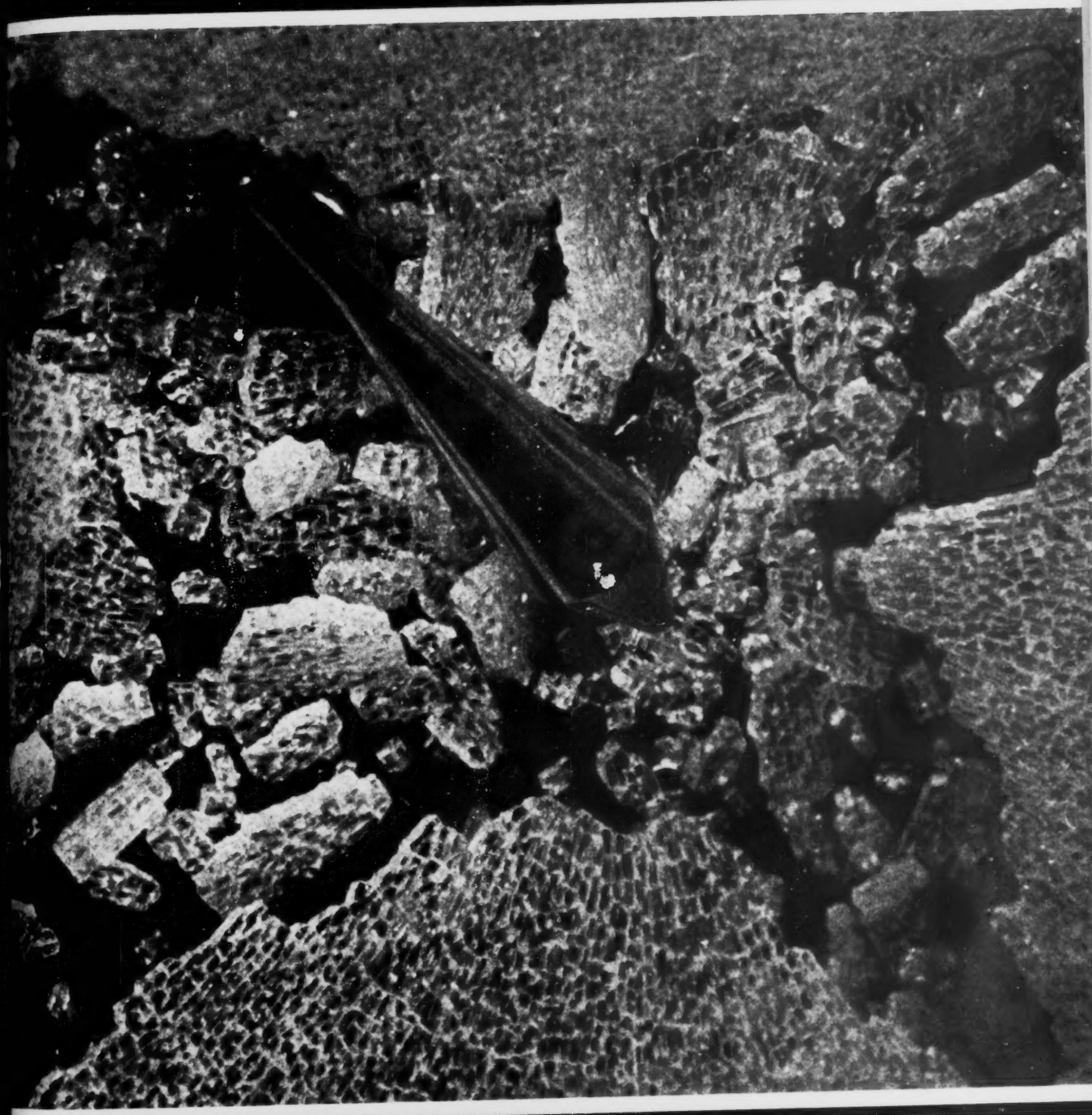
Industrial Standardization

and Commercial Standards Monthly



January

see Article on Page 14

1935

This Issue:

Front Cover: Case-Hardened Glass Broken in Test Made by Safety Glass Technical Committee. See page 14. (Courtesy, Electrical Testing Laboratories, New York)

JANUARY 1935

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22 New Standards Are Approved By ASA in 1934; Total Now 272

Standards Council Chairman Is Gratified at Increased Interest and Activity of National Standards Movement

by
J. C. Irwin[1]
Chairman, Standards Council, ASA.

IN STUDYING the work of the American Standards Association for 1934, one cannot help but feel gratified that in spite of the many handicaps brought about by the general industrial depression the standardization movement has continued not only to maintain the pace set in past years, but has continued to grow. The entire scope of the work of the Association has broadened and taken on a new significance during the past year.

The Association has approved twenty-two new standards of interest to the electrical and construction industries, lumber, pipe, gas and gas appliances, petroleum, paper, textiles and jewelry. Six standards formerly approved have been revised and the revisions accepted as American Standards. The approvals since the last Annual Meeting bring the total number of standards approved by the ASA to 272.

In this list of approved standards are two which resulted from the cooperation with the National Bureau of Standards, initiated by Daniel C. Roper, Secretary of Commerce, in June, 1933. These two standards cover the markings of gold filled and rolled gold plate articles other than watch cases, and binders' board for book-binding and other purposes. Both were submitted to the ASA for approval by the associations in their respective fields, after they had been accepted by these industries as commercial standards developed under the procedure of the National Bureau of Standards. Additional standards submitted under this cooperative arrangement are now before the ASA for approval. Under this arrangement the ASA and the National Bureau of Standards consult with one another during the formative stages of commercial standards and simplified practice recommendations, so that when a standard is finally developed under the procedure, and approved by both organizations, the maximum possible service has been rendered to the industries affected. The location of members of the ASA staff in Washington at the National Bureau of Standards has tended to greatly facilitate this exchange of ideas.

Two other projects that have come to the ASA under this cooperative arrangement with the National Bureau of Standards are the Plumbing Code and the Building Code. The Plumbing Code, you will remember, is now being handled by our committee A40 on Plumbing Equipment, and proposals for handling the Building Code work are now before you for consideration. These two projects very greatly increase the responsibility of the ASA in the development of standards covering the health and safety of occupants of buildings, and the general public.

I do not think it is necessary for me to describe in great detail each of the twenty-eight standards acted upon by the ASA during the past year. You have all received information concerning the standards as they have been approved from time to time through the regular channels of information including the monthly magazine, INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY.

In addition to the approval of a number of standards in what might be called purely engineering fields, such as have comprised the bulk of the approvals given by the ASA in past years, our list of approvals in other fields continues to grow. We have approved five additional standards covering gas burning appliances making the total

[1] Association of American Railroads.

number of standards in this particular field of activity seventeen. All of these standards insure safety in design, construction and installation, and efficiency in operation of such devices as unit heaters, gas stoves, conversion burners for house heating and water heating appliances, and other gas burning appliances and accessories of interest to the general public, as well as a number of gas burning appliances used in industrial operations.

More Consumer Standards

These standards in the field of consumer standards augmented by the initiation of a project on specifications for shrinkage of woven cotton yard goods, and the request for the initiation of a project covering grading nomenclature received from the Consumers' Advisory Board of NRA, all indicate the growing tendency toward the use of the procedure of the ASA along broad lines including both producer and consumer goods.

There is no question in my mind but that because of the increasing demand of the consumer for authoritative specifications covering the manufacture of articles which the public purchases day by day, the procedure of the ASA will be increasingly sought in coming years for the development of standards for goods purchased over the counter by the general consumer.

One of the most important phases of ASA work is in the field of safety codes. The majority of the safety code program applies to industrial operations, although one or two standards have been developed in the past years in the field of public safety. Recently there has been submitted to the ASA for approval a standard covering automobile headlights; another standard that is actively under development covers requirements for safety glass for use in motor vehicles; and a very broad and far-reaching project covering standards for the inspection of motor vehicles has been proposed. This considerably broadens the program in the field of public safety.

Another very interesting proposal to broaden the activities of the ASA should not be lost sight of at this time. You will doubtless remember that the Safety Code Correlating Committee has before it recommendations from the Sectional Committee on Exhaust Systems which, if finally approved by the ASA, would result in the development of a series of standards in the field of occupational diseases.

The recommendations also include setting up a national advisory committee of experts in this important field to give advice to the Exhaust Committee and other committees that now exist, as well as those which may be organized in the future under this new program, concerning some of the very special technical points involved in the solution of occupational disease problems.

If approved, this program should have the effect in these early stages of the development of specifications for the prevention of occupational diseases, of eliminating needless waste. It would also relieve the embarrassment to industries, resulting from the development of a multitudinous number of rules and regulations by regulatory bodies, national associations, and individual industrial establishments. The fact that this new health program has been suggested as being a suitable one to handle under ASA procedure, speaks well for the efficiency with which the safety code program has been handled, and for the degree of acceptance by all interested groups, which the program has received.

This growing tendency to use the procedures of the ASA for the development of standards covering a broader field necessitates some change in the set-up and organization of the work now carried on by the present Standards Council. Your Committee on Procedure and the Joint Committee of the Board of Directors and the Standards Council appointed to consider and make recommendations concerning changes in the set-up necessary for the more efficient handling of the work coming to the ASA, have been very carefully studying the situation during the past year, and you will remember this committee made their preliminary report, together with some general recommendations, at the meeting of the Standards Council held in October.

Fundamental Changes Required

It is evident from the discussions of the committees that fundamental changes in the set-up under which the standardization work of the ASA is handled will have to be made in the very near future. The subdivision of a large part of the work of the Standards Council, by placing it in the hands of what we have pleased to date to call industry divisions, may not finally be the solution of the problems now facing the committee.

It is pleasing to know that these fundamental changes resulting from the growing demands for the services of the ASA by industry and the consumer are facilitated very greatly by the almost complete elimination of the jurisdictional disputes which in past years have so seriously hampered the work. It is only occasionally that such disputes now arise which means that the ASA and the basic principles on which it operates are sound, that the ASA is well established, and that industry as a whole recognizes in the ASA a true national forum and clearing house for the solution of many of its industrial problems.

I am sure that we can all see a bright future for this organization in American industrial life.

The twenty-two new standards approved by the American Standards Association and the six

ASA Board Re-elects Coonley and Moskovics

Entering his seventh year as a member of the Board of Directors of the American Standards Association, Howard Coonley was re-elected president on December 12. Mr. Coonley is president of the Walworth Company, with headquarters in New York. He has been a member of the Board of Directors of the American Standards Association since 1928 when he was appointed to represent the American Society of Mechanical Engineers.

Mr. Coonley has been president of the Walworth Company, manufacturers of steam, gas, and water users' supplies, since 1913. During the war he was vice-president of the United States Shipping Board Emergency Fleet Corporation, and in 1925 he was appointed chief of the First Chemical Warfare Procurement District. He is director of several industrial, insurance, and banking organizations.

F. E. Moskovics, who has been a member of the ASA Board of Directors for five years, having been appointed in 1929 to represent the Society of Automotive Engineers, was re-elected vice-president. Mr. Moskovics is chairman of the Board of Directors of the Marmon-Herrington Company, and vice-president of the Frederick H. Levy Company of New York. He has devoted most of his business career to the automobile industry. He has been associated with the Continental Tire Company, Brandenburg Brothers, Kingston Motor Car Company, the Remy Electric Company, Nordyke and Marmon Company, the Franklin Automobile Company, and the Stutz Motor Car Company.

Re-elect Officers Of Standards Council

J. C. Irwin, valuation engineer, Boston and Albany Railroad, and F. M. Farmer, vice-president, Electrical Testing Laboratories, New York, were re-elected chairman and vice-chairman, respectively of the Standards Council of the American Standards Association at the Annual Meeting of the Council on December 12. Mr. Irwin has been a member of the Standards Council representing the Engineering Division of the American Railway Association since December, 1930. He was elected vice-chairman in December, 1932, and chairman in 1933.

Mr. Farmer has served on the Standards Council representing the American Society for Testing Materials since 1925. He has acted as chairman of the Board of Examination, and is a member of the Committee on Procedure, and of the Electrical Standards Committee and the U. S. National Committee of the Electrotechnical Commission. He is also a member of several of the sectional committees working under ASA procedure.

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standards formerly approved which have been revised and accepted as American Standards during 1934, follow.

American Standard Dimensions of Lodgepole Pine Poles (05f2–1933) and *Dimensions of Douglas Fir Poles (05g2–1933)*, provide a series of dimensions similar to those formerly approved for Northern White Cedar Poles, Western Red Cedar Poles, Chestnut Poles, and Southern Pine Poles, to Lodgepole Pine and Douglas Fir Poles. The dimensions of the poles at six feet from the butt have been so fixed that all six species of poles are equal in strength for any given class and length of pole. Determination of the dimensions for each class of pole followed a thorough research program by the Subcommittee on Fiber Strength which studied available data and commercial practice and made recommendations of ultimate fiber stresses. The Subcommittee on Pole Dimensions prepared the approved standard dimension tables upon the basis of these recommended ultimate fiber stresses.

American Tentative Standard Specifications for Lodgepole Pine Poles (05f1–1933) and the *American Tentative Standard Specifications for Douglas Fir Poles (05g1–1933)* define the minimum quality for acceptable poles of these types. Shape and straightness of grain are specified, and defects such as knots, checks, insect damage, and decay are limited. Departures from straightness are held within practical limits for ordinary use.

American Standard for Ultimate Fiber Stresses of Wood Poles (05a–1930) has been expanded as a result of the approval of the dimensions and specifications for lodgepole pine and Douglas fir poles to inculde the ultimate fiber stress values for these types of poles.

The Telephone Group is sponsor for the committee which developed the dimensions and specifications for wood poles. Twenty-five organizations, consisting of representatives of the electrical, telephone and telegraph, railway, lumber, and wood pole industries, forestry service, city engineers, and purchasing agents are members of the committee.

American Standard for Marking of Gold-Filled and Rolled Gold Plate Articles Other Than Watch Cases (Z31–1933). This standard defines the quality marks for gold-filled and rolled gold plate articles, and the minimum qualities of gold covering on plated articles which may be termed "gold-filled" and "rolled gold plate." These terms are confined to gold-plated articles produced by processes where gold is mechanically applied to the base metal, excluding gold plate manufactured by electrodeposition methods. The standard was developed in cooperation with various branches of the jewelry industry and other industries concerned and was accepted as a Commercial Standard under the procedure of the National Bureau of Standards before its approval by the American Standards Association.

American Recommended Practice for Safety in the Construction Industry (A10–1934). The Safety Manual

of the Associated General Contractors of America was approved in order to round out the safety standards of the American Standards Association for use in federal construction projects, as the result of a clause included in the form of contract of the Federal Public Works Administration. This clause provides that "All machinery and equipment and other physical hazards shall be guarded in accordance with safety codes approved by the American Standards Association, unless such codes are incompatible with Federal, state, or municipal laws or regulations." The ASA committee, which is now working on a Safety Code for the Construction Industry, recommended approval of the Safety Manual as an interim standard pending completion of its work.

Other safety standards approved by the American Standards Association which may be used in connection with Federal construction projects are: Safety Code for Ladders, National Electrical Code, National Electrical Safety Code, Safety Code for the Use, Care, and Protection of Abrasive Wheels, Safety Code for Floor and Wall Openings, Railings and Toe Boards, Safety Code for the Protection of the Heads and Eyes of Industrial Workers, Code of Lighting: Factories, Mills and Other Work Places, Safety Code for Mechanical Power Transmission Apparatus, Safety Code for Woodworking Plants.

The committee working on the Safety Code for the Construction Industry consists of representatives of 18 organizations—engineering, societies, contractors, building officials, acetylene industry, government officials, accident commissions, building exchanges, and employers, and insurance companies. It is under the direction of the American Institute of Architects and the National Safety Council.

American Standard Specifications for Welded and Seamless Steel Pipe (B36.1–1934) cover standard weight, extra-strong, and double-extra-strong pipe. The Code for Pressure Piping allows use of pipe as specified by this standard in power piping systems for pressures not in excess of 250 lb per sq in. at 500 F, as well as in gas and air piping systems, district heating systems, and for oil piping.

American Standard Specifications for Welded Wrought-Iron Pipe (B36.2–1934) cover standard weight, extra-strong, and double-extra-strong pipe suitable for coiling, bending, flanging, etc. The Code for Pressure Piping allows the use of this pipe in power piping systems from 250 lb per sq in. to 400 lb per sq in.; as well as in gas and air piping systems; district steam heating; and for oil piping.

American Tentative Standard Specifications for Lap-Welded and Seamless Steel Pipe for High-Temperature Service (B36.3–1934) are for pipe for 250, 300, 400, 600, 900, and 1500 lb per sq in. at high temperatures, suitable for bending, flanging, and similar services. Supplementary requirements of an optional nature are provided for seamless pipe intended for use in central stations having steam service pressures of 400 lb per sq in. or over and temperatures up to 750 F, or for other applications where a superior grade of pipe is required. The Code allows use of this pipe in power piping systems with pressures above 250 lb per sq in.; in oil piping systems; and district heating systems.

American Tentative Standard Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 30 In. and Over) (B36.4–1934) are for pipe with wall thicknesses up to ¾ in.

American Tentative Standard Specifications for Electric-Resistance-Welded Steel Pipe (B36.5–1934) cover two grades of pipe up to and including 30 in. diameter for conveying liquids, gas, or vapors at temperatures below 450 F and is adapted for flanging and bending in smaller sizes. The Code allows the use of this pipe in power piping systems of from 250 to 400 lb per sq in., and in gas and air piping systems, and district heating systems.

American Tentative Standard Specifications for Forge-Welded Steel Pipe (B36.6–1934) cover two grades of pipe in sizes from 14 in. to and including 96 in. diameter, and wall thicknesses from ¼ in. to 1¼ in. inclusive. The Code allows its use in power piping systems, gas and air piping systems, and district heating systems.

American Tentative Standard Specifications for Lock-Bar Steel Pipe (B36.7–1934) are for pipe suitable for liquids or gases. This pipe is made from steel plates rolled or formed into a circle, having longitudinal edges planed and upset to a dovetail form which engages in the grooves of an H-shape steel lock bar to form the longitudinal joint of the pipe. The Code allows its use in gas and air piping systems.

American Tentative Standard Specifications for Riveted Steel and Wrought-Iron Pipe (B36.8–1934) covers shop-fabricated straight pipe, suitable for conveying liquids or gases. It is made from steel or wrought-iron plates with riveted seams. The Code allows its use in power-piping systems, gas and air piping systems, and district heating systems.

American Tentative Standard Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 8 In. to but not Including 30 In.) (B36.9–1934) are for two grades of pipe in sizes from 8 in. to but not including 30 in. in diameter, and with wall thicknesses up to ⅝ in. inclusive. This pipe is intended for conveying liquid, gas, or vapor at temperatures below 450 F and is adapted for flanging and bending. The Code allows its use in power piping systems from 250 to 400 lb per sq in., and in gas and air piping systems.

Twenty-eight organizations representing the electrical, shipping, gas, refrigeration, petroleum, railway, water works, steel, heating and piping contractors and piping supplies, and valve and fittings industries, boiler manufacturers, mechanical engineers, and government departments are on the committee which is working on pipe standards. The committee is working under the direction of the American Society of Mechanical Engineers and the American Society for Testing Materials.

American Standards for Capacitors (C55–1934). Capacitors for power applications, resonant shunts and filters, blocking capacitors, and power oscillator circuits are covered in these standards. Originally submitted to the American Standards Association by the American Institute of Electrical Engineers in 1930, the standards were withdrawn because of objections raised to certain of its provisions, and after revision which has been accepted by all interests, were resubmitted and approved as American Standard. The committee is sponsored by the American Institute of Electrical Engineers.

American Standard Approval Requirements for Central-Heating Gas Appliances (Z21.13–1934). This standard outlines the requirements for satisfactory operation and construction of central-heating gas appliances which must be met by this type of equipment before it is given approval by the American Gas Association and is granted the privilege of using the Seal of Approval. Two general types of domestic gas equipment—gas boilers and warm air furnaces—are covered by this standard. Gas boilers may be for the generation of steam or hot water for distribution to radiator systems, and warm air furnaces may be of either the conventional basement type or the floor furnace type. Efficiencies of at least 70 per cent are required of warm-air furnaces of the conventional forced or gravity circulation types. Floor furnaces, because of the similarity to space heaters, must produce efficiencies of 65 per cent or greater. In addition to the efficiency test, a fire hazard test for floor furnaces, performance tests for the draft hoods required as a part of each appliance,

and various combustion and burner operating characteristic tests, to insure safety from incomplete combustion and proper operation of burners with any kind of city gas, are specified.

American Standard Approval Requirements for Industrial Gas Boilers (Z21.14–1934). Separate approval standards have been developed for industrial gas burners despite their similarity to the domestic central-heating gas appliances, because their use is primarily commercial. Efficiencies of 60 per cent are stipulated. The tests specified for determining the efficiencies of industrial gas boilers are similar to those applied to domestic boilers.

American Standard Approval Requirements for Gas Unit Heaters (Z21.16–1934). Gas Unit Heaters are also closely related to central-heating gas appliances, but are used primarily in industrial capacities, and separate sets of approval standards have been developed for them, also.

American Standard Listing Requirements for Gas-Burner Valves (Z21.15–1934) permit the certification of a type of accessory used on every type of gas appliance. The standard is the second of a series of construction and performance requirements being developed for gas appliance accessories. The requirements provide tests for capacity, life, tightness, ease of operation, strength, and durability. Cocks are expected to comply with minimum standards at elevated as well as at normal temperatures.

American Standard Listing Requirements for Gas Conversion Burners (Z21.17–1934). The gas conversion burner is a type of domestic heating device, closely associated with central-heating gas appliances, designed to be installed in appliances originally intended for the consumption of solid fuels. Because the satisfactory performance of conversion units depends to a large extent upon the manner of their installation and the type of appliance in which they are installed, these units are considered as accessories rather than complete gas-burning appliances, and therefore may only be granted the privileges of A.G.A. listing, not approval. The standards, however, do assure proper construction and design and safe and acceptable performance of listed conversion burners when installed in accordance with the American Standard Requirements for Installation of Conversion Burners in House-Heating and Water-Heating Appliances (Z21.8–1933), formerly approved by the American Standards Association, and when they are operated in conformity with the instructions of the manufacturer.

In addition to the American Gas Association, which is sponsor for the standardization work on gas appliances and accessories, ten organizations representing consumers, architects, fire insurance companies, heating, piping, and air conditioning contractors, plumbers, safety interests, and government departments are on the committee which developed these national standards according to the procedure of the American Standards Association.

American Standard Binders Board for Bookbinding and Other Purposes (CS–50). The Binders Board Manufacturers Association submitted this standard, following its acceptance by the industry as a Commercial Standard under the procedure of the National Bureau of Standards, to the American Standards Association for approval. The provisions of the standard are similar to the technical requirements in Specifications for Binders Board, adopted and used by the Binders Board Manufacturers Association since 1931. Among the acceptors of the standards were church organizations, book manufacturers and publishers associations, historical societies, and bookbinders associations.

American Standard Abridged Volume Correction Table for Petroleum Oils (Z11.1–1934) was revised by the addition of two new groups, one for light and the other for heavy products. The revision also includes a rearrangement of the tabular material for convenience in using the standard.

American Standard Method of Test for Cloud and Pour Points (Z11.5–1934) was revised to clarify provisions for determination of pour points below 50 F, for maintaining the temperature of the cooling bath, and for carrying the tests to successively lower temperatures.

American Standard Method of Test for Sulfur In Petroleum Oils by Bomb Method (Z11.13–1934). A revision of this standard, originally entitled Method of Test for Sulfur in Petroleum Oils Heavier than Illuminating Oils, restricts the standard to tests made by the bomb method and defines the scope of the project as "determination of sulfur in petroleum oils which cannot be burned completely in a wick lamp." Provisions restricting the variations allowed in the results obtained from the tests have also been amplified. The American Society for Testing Materials is sponsor for the development of national Standard Methods of Testing Petroleum Products and Lubricants.

American Standard General Methods of Testing Woven Textile Fabrics (L5–1934) have been revised to include a modification of the definition for crimp and an additional section covering a method of test for shrinkage of woven cotton fabrics. The shrinkage test method is fundamental in work now under way for the development of specifications for shrinkage of woven cotton yard goods. The American Society for Testing Materials is leader in the work on this project. The method of test for shrinkage was prepared by a joint committee of the A.S.T.M., the National Bureau of Standards, and the American Association of Textile Chemists and Colorists.

American Standard Fire Tests of Building Construction and Material (A2–1934). A revision to clarify the text of the American Tentative Standard and to include a modification of the meaning of the term "combustible" has been approved by the American Standards Association, and the standard has been advanced to the status of American Standard. In the Tentative Standard the term "combustible" was defined as meaning that burning (which might be construed as either flaming or glowing) continued in the building or material being tested after the furnace fire was shut off. In the revised text the term "combustible" is applied where free burning or flaming occurs during exposure to the test fire or where flaming continues after exposure.

Dimensional Standards and Recommended Practice for Motion Picture Apparatus (Z22). A sectional committee is now being organized to work on standards for motion picture apparatus, the Society of Motion Picture Engineers having been named sponsor of the committee. The scope of the work has been defined as "Terminology, Dimensional Standards, Methods of Test and Rating, and Performance characteristics of the materials and devices used in sound motion picture photography, and in sound recording, processing, and reproduction in connection therewith." The organizations which are being invited to name representatives on the committee include technical or engineering societies interested in motion pictures, electricity, radio, acoustics, fire protection, lighting, and optical science, manufacturers and distributors of kodaks, films and other equipment, motion picture theatre owners, exhibitors, producers and distributors, and U.S. Government departments.

Standardization of Plumbing Equipment (A40). As the result of recommendations made by a special committee appointed by the Standards Council to advise on methods of handling the plumbing code work previously carried out by a committee of the Department of Commerce, the scope of the project on plumbing equipment under ASA procedure was broadened to include minimum requirements for plumbing, including water supply distributing systems, drainage and venting systems, plumbing fixtures, apparatus, and devices, as well as the standardization of plumbing equipment.

Harnessing Scientific Discoveries

by
P. G. Agnew

Secretary,
American Standards Association

Standardization Is Cited As Means for Reducing Time Lag Between Scientific Discoveries and Everyday Use, in Nation-Wide Radio Broadcast[1]

TO MOST of us radio is the most startling triumph of the machine age—this thing that can carry the human voice to the ends of the earth—through silent space—and with the speed of light.

We are apt to think of radio as being built wholly on science that is new in the last few years. This is, however, not the case. Ninety-two years ago electromagnetic waves were transmitted over a distance of 200 feet, and they were successfully detected even through the walls of buildings. This remarkable experiment was done by one of the great men of American science, Joseph Henry, who later became the first Secretary of the Smithsonian Institution in Washington.

Henry did this famous experiment on the campus of Princeton University, years before the famous gold-rush of the Forty-Niners. In another one of his remarkable experiments, he was able to magnetize a needle by induction from a lightning stroke eight miles distant.

During the same period Michael Faraday, in England, carried out a long series of world-famous experiments. One of his results was to show that in ordinary electric circuits the power travels chiefly in the space surrounding the wires instead of within the wires themselves. This was before our civil war, and at the time when the ox-cart was an important means of transportation.

Sixty years ago one of the great minds of the nineteenth century, Maxwell, showed that electromagnetic energy travels through space in the form of waves, and he showed many of the properties of these waves. One of these was that they travel with the velocity of light—a velocity great enough to travel around the earth seven times in a single second. He showed that these waves would behave like light waves, and that light itself consists of very short electromagnetic waves. Maxwell discovered all this by mathematical theory, and his work, like Newton's discovery of the law of gravitation, constitutes one of the great triumphs of the human mind.

Maxwell's work waited many years to be verified by laboratory experiments by a young German scientist, Heinrich Hertz, by name. By 1888 Hertz had not only proved Maxwell's theories to be right, but in doing so had been able, for the first time, to set up what we would now call a radio sending station. He was able, not only to send out the waves, but to control their frequency or wave length.

38-Year-Old Receiving Coils

The following year Sir Oliver Lodge succeeded in setting up a radio receiving station. It was the forerunner of the present-day radio set, though to the eyes of most of us the two would have no resemblance to each other. Lodge was soon able to give a public demonstration and by 1897 had patented the use of "tuning coils", which were the forerunner of the dials we now use.

In all this earlier history, there were time-lags of 40 and 60 and 90 years between the beginnings of the scientific principles underlying the radio art and its practical adaptation to everyday use. Yet by 1900 things had begun to move faster, and especially during and since the war they have moved much faster. This reduction of time-lag in getting science into use is a matter of great human interest and significance.

On Christmas eve in 1906, Fessenden—a great pioneer who was in many ways ahead of his time—actually succeeded in broadcasting a program. The following year he was able, for the first time, to transmit the human voice across the Atlantic Ocean.

All of these things were accomplished without

[1] Under the auspices of Science Service, November 27, 1934.

the use of electron vacuum tubes which are now essential to both the sending station and the receiving set. These tubes also have a long history. The principle upon which they operate goes back to early work of Edison's half a century ago. In fact, for many years it was known as the Edison effect. The tubes depend for their action on the control of the motion of electrons—those inconceivably small particles of electricity of which the very atoms of matter are made up.

The radio tube was put into workable form by DeForest in 1907, and it was greatly improved by Langmuir just before the war. (It is interesting to note that DeForest was unable to sell his patent and let it lapse rather than pay $25.00 for its renewal.)

Historic SOS Was Stimulus

Great popular interest in "wireless telegraphy" was created by the use of the "SOS" at the time of the sinking of the Titanic in 1912, and in other great marine disasters.

Yet a far greater interest was to come with the advent of broadcasting which made it possible for millions of people to have the thrilling experience of bringing human voices out of the air by merely twisting a dial.

Present-day broadcasting was started by Conrad on November 2, 1920, with the opening of station KDKA, the first broadcast being the election of President Harding.

From then on the response of the public to this dramatic new means of communication was unprecedentedly great, and rapid. How great the response was is well shown by the quickness with which this new medium of communication came into use in political campaigns. The radio played a major part in the campaign for the presidency in 1924, when the conventions of the principal parties were broadcast. Who does not remember the oft-repeated question put by Senator Walsh, the Chairman of the Democratic convention: "For what purpose does the gentleman arise?"

The imagination of the country was fired by this new medium, and radio quickly swept into popular favor the country over. By 1928 it had easily become the principal battle-ground in national political campaigns.

Improvements Come Rapidly

This great popular interest brought about extremely rapid developments in the radio art, both technically and commercially. Among these were such important steps as the loud-speaker—the self-contained set—complete electric operation, which did away with batteries—and single-dial tuning. Scores of other improvements followed each other in remarkably quick succession.

One of the important ways by which scientific developments quickly find their way into use is through standardization. When well done, this means to find out the best way of making a thing or the best way of doing a job, and then systematically making the thing or doing the job that way. This generally means the use of the results of scientific research and it often means new researches. Standardization is a cooperative job. It is carried out by companies and by groups, such as trade associations, technical societies, and government departments, and also on a national scale. The American Standards Association is the national clearing house for the standards movement.

It is doubtful if the speed with which these many developments came and were adapted into everyday use has ever been equaled in any other field. These advances in the underlying sciences upon which radio is based, slow in the early stages marked by the discoveries of Henry, Faraday, Maxwell, and other pioneers, have come with increasing rapidity down to the present time.

It would be interesting to trace the advances in other sciences, the results of which have come into everyday use. We should see the same increasing rapidity in the growth of the science and in its everyday use.

The process of mercerizing cotton was discovered by Mercer 90 years ago, but nearly all of the development, and its introduction into everyday use, has come within our own time.

It is only 20 years ago that vitamins were discovered—slightly more than a decade since the discovery of the sunshine vitamin—yet every intelligent school child today knows the meaning of vitamins, and every dietitian, every country doctor is prescribing them.

Among the numerous fields in which discovery and use have come with increasing rapidity, especially during our own time, have been the electric light, the telephone, the airplane, the moving picture.

In fact, the speeding up of scientific and technical research, and the parallel speeding up in the process of putting the results into practical use, have largely come about within our own lives. It has come to such a stage that many of our more progressive industries do their scientific research to order, so that they may meet present and future needs. This also has come about almost entirely within a single generation.

Science is playing a constantly increasing part in our lives.

In the first place there are more and more people working in science and in applying it to our everyday life.

Then, too, more and better means are continually becoming available to do the work.

But I think the most important reason is the attitude of people toward science. It is immensely significant that they look upon scientific methods with increasing sympathy and understanding. This is true both of executives in industry and of people in all walks of life.

All this means that the machine age is continuing to increase its sway. Some people look upon this with alarm. I do not. I am sure that most people who have thought deeply about the matter take the view that through science lies the road to better ways of living and to a "more abundant life" for all of us.

Members Increase Use Of ASA Library Service

An increasing number of Members of the American Standards Association are using the services of the ASA Library, records of requests answered by the Library during the past year disclose.

Questions answered by the Library vary from simple requests for copies of American or foreign approved standards to complicated questions which require highly technical and specialized research.

Standards for use as a basis for the preparation of company purchase specifications, or to clarify references in invitations to bid on various materials, are frequently requested. Drafting and design departments ask for standards which can be used in designating materials (bolts, screws, etc.).

Inspectors for insurance companies, engineers in charge of production, building inspectors, safety engineers, and others keep in touch with the ASA Library with reference to the latest safety code requirements.

Manufacturers frequently find it necessary to meet requirements of national standards of other countries in connection with their foreign trade, and files of all national standards from 26 countries which have national standardizing bodies are maintained in the ASA Library, through an exchange arrangement.

Material available in the Library was loaned during the past year in response to 380 requests, and $4,000 worth of publications were sold through the Library.

20,000 Items Available

A collection of approximately 20,000 pamphlets and books on some phase of standardization are in the Library and are available for the use of Members.

In addition to the loan and sale of standards, special reference work is done by the Library staff for the Members of the American Standards Association, the technical staff, and the technical committees working under ASA procedure.

Typical of the work done by the Library is a collection of all existing standards on coal-tar solvents from all foreign countries as well as the United States which was brought together as the result of an inquiry. One recent question was for a list of safety provisions which would make it possible for operators to discard cables on freight and passenger elevators before failure of the cables but after they have given maximum service.

The work of the Library is organized to conform to regular library procedure so that it can be continuously carried on by trained library assistants, and in such a way that a maximum portion of the time of the staff can be given to reference questions.

Power Switchgear Committee Helps in International Work

Five standards are now being prepared by the Sectional Committee on Power Switchgear to cover oil circuit breakers, large air circuit breakers, disconnecting and horn gap switches, high-voltage fuses and associated current limiting resistors (above 750 volts), and metal-clad switchgear.

Active cooperation in the international work on power switchgear was part of the program during the past year, H. R. Summerhayes, chairman of the sectional committee, says in his annual report to the Electrical Standards Committee. Documents of the International Electrotechnical Commission have been referred to the subcommittees for their information and guidance, and comments were submitted at the October meeting of IEC Advisory Committee 17 in Prague.

Dielectric tests have been excluded from consideration when preparing standards by all the subcommittees of this sectional committee, until the Joint Committee on Coordination of Insulation of the Edison Electric Institute and the National Electrical Manufacturers Association has completed its work. This joint committee is actively engaged in establishing a basis for specifying such tests.

ASA Board of Directors Authorizes Conferences On Grade Nomenclature

By unanimous vote, the Board of Directors of the American Standards Association authorized calling conferences to launch the proposed project on consumer goods grade nomenclature, at its annual meeting December 12.

The Board approved a report of the special joint committee of Board and Standards Council members, appointed by President Coonley when a question was raised on October 10 as to the constitutionality of the Association's embarking on this project.

The Consumers' Advisory Board recently asked the American Standards Association to undertake to develop a system of simple and meaningful set or sets of terms to be used in describing various grades of commodities.

In connection with the question, the general problem of consumer goods standards was investigated. The report said, in part:

"A question arises as to the propriety of the American Standards Association attempting any standardization work in the field of consumer goods. Attention is called to the fact that the objects of this Association, as set forth in Article II of the Constitution, are numerous and that the satisfaction of any one of these objects may be sufficient, though not a necessary condition, of embarking on a particular project.

"The primary requirement as to the propriety of undertaking a particular project is the criterion as to whether engineering *methods* apply. It definitely must be recognized that there is no thought here of restricting the work of the Association to standards having to do with engineering commodities.

"Indeed, such broader interpretation is deemed to be involved in Section C 23 which contemplates the promotion of knowledge of and use of approved American *industrial and* engineering standards. Here, quite clearly, standards other than engineering standards are contemplated as being within the scope of the Association.

"Again referring to Section C 21 it may be noted that it is expected that 'organizations concerned with standardization work may cooperate in establishing American Standards.' It is the judgment of your committee that the development of a model system of nomenclature for grades of consumer goods may well enough be a part of the process of industrial standardization, and that such an undertaking would provide a systematic means by which organizations concerned with standardization work might cooperate in establishing American Standards in those fields in which engineering methods apply to the end that the promulgation of conflicting standards may be avoided.

"Your committee specifically recommends that within its means the Association seek to engage in such broadly conceived projects as the one here discussed frankly recognizing in this recommendation a clear adaptation of an increasing scope of the Association to increased social opportunities for the wider application of engineering and scientific methods."

The report had the unanimous vote of the committee, of which John C. Parker was chairman. Other members were R. P. Anderson, L. J. Briggs, C. M. Chapman, J. C. Irwin, and W. T. Rossell.

ASA Increases Members in 1934

The membership of the American Standards Association reached a high point during 1934 with the affiliation of 1,244 companies entitled to membership service from the ASA. The Group Membership plan under which the National Electrical Manufacturers Association extended the ASA service to all of its members added 650 individual companies to the list. Other Group Members include the American Railway Association, the Mutual Casualty Companies, and the American Iron and Steel Institute.

The new Associate Membership is represented by 11 members, which include 12 national organizations.

Member-Bodies now number 36, representing 40 national organizations.

This increased membership is reflected in an increase in the representative governing boards of the American Standards Association. The Standards Council, which is the final authority on approval of American Standards under the procedure of the American Standards Association, now has a membership of 59. All of the Member-Bodies of the ASA are represented on the Standards Council.

Sizes and Weights of Building Bricks Vary Widely in the United States

Through the courtesy of the National Bureau of Standards, the following tables are presented as an illustration of the situation now existing with respect to size of building brick (see INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, November, 1934, page 247, "Bureau Will Study Sizes of Building Materials"). These measurements were obtained as part of the survey conducted jointly by the Common Brick Manufacturers Association and the National Bureau of Standards in 1930. The data on strength and water absorption resulting from this same survey have been previously reported in the Proceedings of the American Society for Testing Materials, Volume 33, Part II, pages 636-50, 1933, "Strength, Water Absorption and Weather Resistance of Building Bricks Produced in the United States," by J. W. McBurney and C. E. Lovewell. Reference is made to this A.S.T.M. paper for description of methods of sampling, weighting of averages, scope of survey, and other details, in connection with the following tables:

TABLE I

Weighted Averages of Size and Weight for Hard and Salmon Bricks by Districts and Cities

District or City	*Type of Brick*	*Average Dimensions in Inches*			*Average Volume, Cubic Inches*	*Average Weight, Pounds*
		Length	*Breadth*	*Depth*		
Maine, New Hampshire, and Vermont	Hard	7.78	3.45	2.17	58.35	4.33
	Salmon	8.12	3.68	2.28	68.43	4.40
Boston, Mass.	Hard	7.90	3.44	2.21	60.09	4.30
	Salmon	8.35	3.74	2.31	72.10	4.46
Massachusetts, except Boston	Hard	7.92	3.43	2.28	61.93	4.12
	Salmon	8.17	3.59	2.34	68.77	4.20
Connecticut	Hard	7.99	3.37	2.28	61.32	3.84
	Salmon	8.20	3.50	2.34	67.17	3.85
Hudson Valley	Hard	7.90	3.35	2.27	60.05	3.71
	Salmon	7.97	3.40	2.27	61.52	3.51
New York except Hudson Valley	Hard	7.96	3.61	2.31	66.59	4.24
New Jersey	Hard	7.95	3.48	2.19	60.74	4.18
	Salmon	8.29	3.72	2.23	67.06	4.15
Delaware	Hard	8.11	3.72	2.16	65.39	4.69
	Salmon	8.46	4.03	2.17	74.00	5.00
Baltimore, Md.	Hard	8.00	3.72	2.23	66.40	4.78
	Salmon	8.37	3.91	2.35	76.38	4.79
Maryland except Baltimore	Hard	7.88	3.62	2.38	67.97	4.62
	Salmon	7.95	3.71	2.21	65.20	4.20
Philadelphia, Pa.	Hard	8.12	3.68	2.25	67.26	4.56
	Salmon	8.34	3.97	2.31	76.61	4.61
Eastern Pennsylvania except Philadelphia	Hard	8.06	3.69	2.24	66.74	4.91
	Salmon	8.39	4.02	2.31	77.69	4.82
Pittsburgh, Pa.	Hard	8.02	3.71	2.24	66.69	5.34
	Salmon	8.34	3.87	2.32	74.81	5.30
West Virginia and Western Pennsylvania except Pittsburgh	Hard	7.97	3.67	2.22	65.04	5.00
	Salmon	8.21	3.84	2.30	72.93	5.13

TABLE I (*Continued*)

District or City	*Type of Brick*	*Average Dimensions in Inches*			*Average Volume, Cubic Inches*	*Average Weight, Pounds*
		Length	*Breadth*	*Depth*		
Cleveland, Ohio.....	Hard	8.19	3.71	2.26	68.46	4.50
	Salmon	8.45	3.73	2.30	72.63	5.00
Northern Ohio except Cleveland.....	Hard	8.02	3.59	2.23	64.34	4.79
	Salmon	8.23	3.75	2.29	70.68	4.50
Detroit, Mich.	Exterior	7.73	3.55	2.28	62.50	4.27
	Stock	8.17	3.79	2.46	76.47	4.34
	Salmon	8.24	3.74	2.34	78.00	4.10
Wisconsin.....	Hard	7.85	3.64	2.22	63.40	3.82
	Salmon	8.35	3.79	2.27	71.80	3.80
Chicago, Ill.	Hard	8.05	3.73	2.24	67.43	4.25
	Salmon	8.30	3.86	2.30	73.40	4.20
Illinois except Chicago.....	Hard	8.08	3.56	2.23	64.20	4.91
	Salmon	8.41	3.88	2.32	75.49	4.86
Kentucky.....	Hard	8.02	3.74	2.23	66.60	4.52
	Salmon	8.31	3.86	2.30	73.77	4.74
Southern Indiana...	Hard	7.99	3.78	2.24	67.34	5.40
St. Louis, Mo.	Hard	8.21	3.78	2.30	71.46	5.14
	Salmon	8.44	3.92	2.31	76.08	5.14
Missouri except St. Louis.....	Hard	8.00	3.61	2.21	63.64	4.91
	Salmon	8.33	3.65	2.29	69.60	4.63
Nebraska.....	Hard	8.06	3.70	2.25	67.04	4.55
	Salmon	7.96	3.66	2.32	67.45	4.30
Kansas.....	Hard	7.97	3.57	2.19	62.30	4.95
	Salmon	8.48	3.88	2.30	75.70	4.60
Denver, Colo.	Hard	8.05	3.77	2.40	72.72	5.10
	Salmon	8.14	3.82	2.40	74.60	5.03
Colorado except Denver.....	Hard	8.07	3.76	2.34	71.09	5.04
	Salmon	8.27	3.93	2.40	77.97	5.17
Utah.....	Hard	8.10	3.92	2.26	71.70	4.89
Wyoming.....	Hard	7.98	3.75	2.27	67.93	4.28
	Salmon	8.24	3.86	2.36	74.60	5.00
Washington and Oregon.....	Hard	8.20	3.82	2.33	72.92	5.08
	Salmon	8.29	3.98	2.40	79.30	4.90
California.....	Hard	8.22	3.80	2.43	75.92	5.02
Texas.....	Hard	8.02	3.73	2.25	67.30	4.33
Mississippi, Louisiana, and Arkansas.....	Hard	8.09	3.76	2.29	69.74	4.46
	Salmon	8.03	3.82	2.23	68.00	4.32
Alabama, Tennessee, and North Carolina	Hard	8.28	3.83	2.33	73.88	4.97
	Salmon	8.32	3.87	2.34	75.30	4.78
Richmond, Va.	Hard	7.95	3.66	2.28	66.44	4.92
	Salmon	8.15	3.76	2.28	69.84	4.66
Virginia except Richmond.....	Hard	8.06	3.75	2.27	68.70	5.10
	Salmon	8.28	4.00	2.30	76.00	5.40
Washington, D. C. ..	Hard	8.32	3.96	2.40	78.74	5.66
	Salmon	8.60	4.16	2.24	80.24	5.52
Weighted averages of all samples, both hard and salmon..		8.01	3.66	2.27	66.80	4.51
Weighted averages of all hard samples ..		8.03	3.65	2.27	65.96	4.55
Weighted averages of all salmon samples		8.25	3.75	2.31	71.50	4.46

TABLE II

Distribution as Percent of Total Samples from Each City
The samples included only hard bricks as classified by the manufacturer.

Range	Boston	New York	Philadelphia	Baltimore	Washington	Richmond	Pittsburgh	Cleveland	Detroit	Chicago	St. Louis	Denver
LENGTH, WHOLE BRICK												
Inches:												
8.51 to 8.75	....	....	....	....	....	....	....	....	....	....	9.2	....
8.26 to 8.50	10.7	....	18.7	....	66.0	....	....	25.4	35.3	10.1	32.4	....
8.01 to 8.25	2.1	20.5	55.3	45.7	34.0	15.2	67.4	70.6	39.2	41.0	48.6	91.7
7.76 to 8.00	76.0	66.9	26.0	54.3	....	84.8	32.6	1.8	12.8	48.9	....	8.3
7.51 to 7.75	11.2	12.3	....	....	....	....	....	2.2	12.7	....	9.8	....
7.26 to 7.50	....	0.3	....	....	....	....	....	....	....	....	....	....
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BREADTH, WHOLE BRICK												
Inches:												
4.01 to 4.10	....	....	....	....	58.5	....	....	....	....	....	....	....
3.91 to 4.00	....	....	7.8	....	....	....	....	....	3.9	....	4.9	....
3.81 to 3.90	....	....	3.1	....	41.5	....	....	30.5	22.3	10.6	56.2	29.2
3.71 to 3.80	3.7	....	26.3	27.1	....	58.1	63.8	....	41.3	59.6	19.5	62.5
3.61 to 3.70	7.0	....	43.3	71.8	....	10.9	30.1	66.6	19.9	29.8	9.6	8.3
3.51 to 3.60	....	9.3	11.7	1.1	....	17.8	6.1	2.9	1.2	....	....	....
3.41 to 3.50	59.8	20.1	7.8	....	....	13.2	....	....	8.1	....	9.8	....
3.31 to 3.40	27.4	40.1	....	....	....	....	....	....	....	....	....	....
3.21 to 3.30	....	23.9	....	....	....	....	....	....	....	....	....	....
3.11 to 3.20	....	6.3	....	....	....	....	....	0.04	....	....	....	....
3.01 to 3.10	2.1	....	....	....	....	....	....	....	....	....	....	....
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DEPTH, WHOLE BRICK												
Inches:												
2.61 to 2.65	....	....	....	....	34.0	....	....	....	....	....	....	....
2.56 to 2.60	....	....	....	....	....	....	....	....	3.9	....	....	....
2.51 to 2.55	....	....	....	....	....	....	....	....	18.4	....	....	....
2.46 to 2.50	....	0.3	....	....	....	....	....	....	7.7	....	....	....
2.41 to 2.45	....	....	7.8	....	....	....	....	....	26.1	....	9.2	45.8
2.36 to 2.40	....	....	....	....	35.9	30.4	....	....	29.1	....	....	45.8
2.31 to 2.35	7.0	24.8	18.7	25.2	....	....	13.1	....	....	20.7	35.1	8.4
2.26 to 2.30	37.4	27.6	26.5	1.9	....	30.0	22.1	59.6	6.3	20.7	18.8	....
2.21 to 2.25	4.2	44.3	17.9	21.3	....	16.3	18.7	38.2	2.1	39.4	6.9	....
2.16 to 2.20	32.4	2.8	3.9	51.6	22.6	23.3	16.1	....	4.3	19.2	....	....
2.11 to 2.15	4.2	0.2	20.0	....	7.5	....	....	2.2	2.1	....	....	....
2.06 to 2.10	14.8	....	5.2	....	....	....	....	....	....	....	....	....
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
VOLUME												
Cubic Inches:												
77.6 to 80.0	....	....	....	....	69.8	....	....	....	20.8	....	14.1	....
75.1 to 77.5	....	....	12.5	....	....	....	....	....	16.0	....	....	....
72.6 to 75.0	....	....	3.1	....	22.7	....	....	....	11.6	....	20.6	75.0
70.1 to 72.5	3.7	....	5.4	....	....	30.4	12.1	30.5	....	30.8	45.9	16.7
67.6 to 70.0	7.0	....	7.8	27.1	7.5	15.2	30.2	29.1	6.8	10.6	9.6	8.3
65.1 to 67.5	....	4.1	31.3	18.6	....	12.4	24.8	35.6	2.1	39.1	....	....
62.6 to 65.0	14.8	13.9	23.9	31.6	....	25.6	28.6	2.6	....	19.2	....	....
60.1 to 62.5	21.1	28.0	7.8	19.7	....	14.8	3.3	....	6.3	....	9.8	....
57.6 to 60.0	11.2	36.9	5.2	....	....	1.6	....	2.2	1.3	....	....	....
55.1 to 57.5	27.4	14.8	....	....	....	....	....	0.04	2.1	....	....	....
52.1 to 55.0	12.7	0.2	....	....	....	....	....	....	....	....	....	....
50.1 to 52.5	....	1.8	....	....	....	....	....	....	....	....	....	....
47.6 to 50.0	2.1	....	....	....	....	....	....	....	....	....	....	....
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE II (*Concluded*)

Range	Boston	New York	Philadelphia	Baltimore	Washington	Richmond	Pittsburgh	Cleveland	Detroit	Chicago	St. Louis	Denver
					WEIGHT							
Pounds:												
3.26 to 3.50	....	1.8	....	....	....	....	....	....	....	....	....	....
3.51 to 3.75	....	69.2	....	....	....	....	....	....	....	....	....	....
3.76 to 4.00	4.2	21.6	5.2	....	....	....	....	....	....	....	....	....
4.01 to 4.25	38.0	1.1	5.2	....	....	....	....	38.6	20.0	19.5	....	....
4.26 to 4.50	40.1	....	21.0	....	....	12.4	....	32.3	56.9	50.5	....	....
4.51 to 4.75	11.1	....	8.6	50.5	....	14.7	....	....	13.1	....	31.3	....
4.76 to 5.00	3.6	....	52.2	48.1	....	27.2	23.5	....	....	....	1.9	35.1
5.01 to 5.25	....	....	7.8	1.1	....	45.7	13.1	29.1	....	....	26.3	35.1
5.26 to 5.50	....	....	....	....	31.0	....	21.8	....	....	....	19.5	29.2
5.51 to 5.75	....	....	....	....	30.2	....	38.6	....	....	....	18.0	....
5.76 to 6.00	....	....	....	....	....	....	....	....	....	....	....	....
6.01 to 6.25	....	....	....	....	25.8	....	....	....	....	....	....	....
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Architects Endorse Plan For Uniform Brick Sizes

More careful insistence upon maintaining definite standards in various building materials would result in helpful economies in buildings erected by tax-supported agencies, points out the American Institute of Architects in endorsing the movement for uniform sizes fostered by the National Bureau of Standards. The development of such standards should not, it is stated, exclude or discourage the manufacture of odd-sized brick for special purposes or esthetic reasons.

"The present lack of coordination and variations in sizes of building units, particularly between different sections of the country, should not be attributed to the vagaries of the manufacturers," reports the Institute. "Deviations from the standard sizes adopted by the masonry unit industries, for example, can to a large extent be traced to the demands of users of those materials and recognizing this situation the manufacturers should not be too severely criticized for producing sizes which seem to fit the popular demand.

"In order that a more stable unit may be maintained as a basis of measurement, the brick manufacturers throughout the country with the helpful cooperation of all concerned should be encouraged to adhere as closely as possible to the standard dimensions adopted by that industry.

Brick Size Standards

"With the assurance that brick sizes would remain constant, leaders in other industries have indicated that the manufacturers of adjoining units will be glad to make such minor adjustments in their products as may be necessary to conform to the requirements of the correlation pattern.

"Results likely to be satisfactory to all might be obtained by taking the standard common brick dimensions, 8 by 2¼ by 3¾ inches, with a slightly increased depth of 2¼ inches minimum to 2 4/10 inches maximum, and with a half-inch mortar joint as a basis of measurement for adjoining units.

"The slight increase in depth is needed to provide the desirable ratios for brick laid in any position. These combinations seem to provide the most satisfactory basis for design of adjoining units, with the least disturbance to the manufacturing processes of the majority of industries. This is particularly true with regard to such materials as clay tile and concrete block, the sizes of which are now based on standard brick dimensions.

"It is the intention of the coordination movement to confine activities to units for use in structures where economy in materials and labor are deciding factors, such as Federal, State and local government buildings, commercial structures, industrial buildings, mass-production projects, and low-cost housing.

"For these reasons there is nothing in the proposed project that should be objectionable to architects on the basis of being contrary to their desire for freedom."

Safety Glass Code Is Submitted To Interested Groups for Vote

Uniform Code Needed by State Administrators, Is Written After Months of Work by Technical Committee

by

Alfred W. Devine,

Registry of Motor Vehicles,
The Commonwealth of Massachusetts.

A CODE covering the characteristics for satisfactory performance of safety glass for automobiles is, by vote of the Committee of the American Standards Association Z26, to be sent out by letter ballot for vote on its adoption as an American Tentative Standard.

This activity of the American Standards Association results from a situation which has been reached after a period of several years development of different types of safety glass. Eight States in this country now require approval of safety glass and have tests of one sort or another which are used to determine the acceptability of the glass. These test requirements vary in the different States, in some instances quite widely. With other States giving some indication of taking prompt action of the same kind, it has appeared quite necessary to prepare a code for uniform adoption.

The preparation of the code for safety glass is sponsored in the ASA by the National Bureau of Casualty and Surety Underwriters and by the National Bureau of Standards. The organization meeting of the Standards Committee was held May 28. The following officers were elected for the Sectional Committee:—

Alfred W. Devine, Massachusetts Registry of Motor Vehicles, Chairman.

A. N. Finn, United States Bureau of Standards, Vice-Chairman.

Maxwell Halsey, National Bureau of Casualty and Surety Underwriters, Secretary.

Work Restricted to Vehicles

At this first meeting it was voted to restrict the activities of the Committee for the present to the preparation of a code for safety glass for motor vehicles. Consideration of safety glass for other kinds of uses was deferred. The chairman was authorized to appoint a subcommittee of approximately eleven members in certain groups to prepare the code. The following were appointed:—

William F. Little, Electrical Testing Laboratories, Chairman.

A. F. Odell, duPont Viscoloid Company.

E. A. Wilson, Fiberloid Corporation.

R. A. Miller, Pittsburgh Plate Glass Company.

Mr. McCusker, Saftee Glass Company.

Martin Schreiber, Public Service Coordinated Transport.

H. C. Mougey, General Motors Corporation.

George L. McCain, Chrysler Corporation.

Burton W. Marsh, American Automobile Association.

Alfred Devine, Registry of Motor Vehicles, Massachusetts.

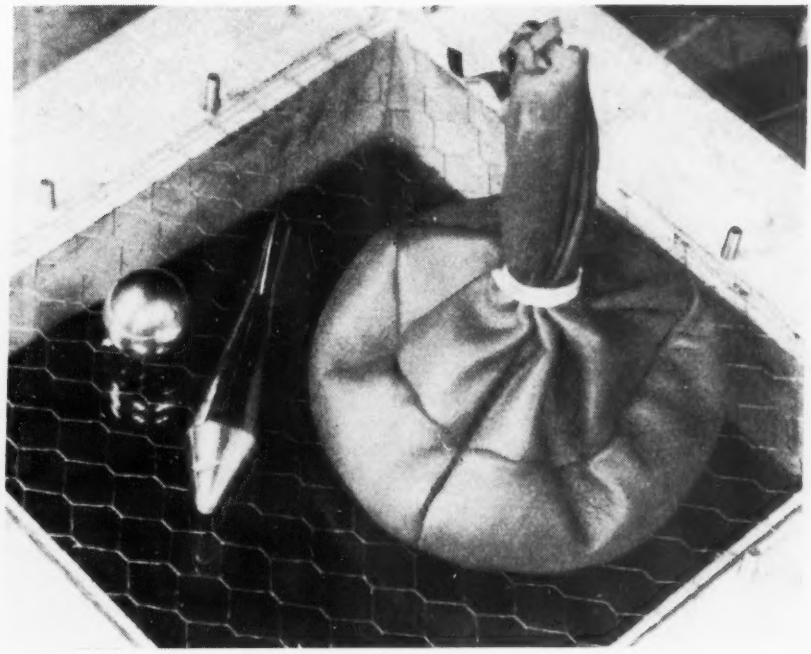
A. N. Finn, Chief, Glass Division, National Bureau of Standards.

Maxwell Halsey, National Bureau of Casualty and Surety Underwriters.

E. H. Hobbie, Mississippi Glass Company.

The subcommittee held four meetings, on June 15, July 13, August 3 and November 2.

On November 21 the sectional committee held its second meeting and received the report of the subcommittee on automobile glass for its consideration. It was pointed out that the committee was interested in the adoption of a *safety* glass code and that that particular fact should be borne in mind at all times during the deliberations. For that reason it was considered that the specifications should be prepared in the functional form rather than in the form of individual and separate specifications for each different kind of glass. This



Half-pound steel ball, 7 ounce steel dart and leather bag filled with shot weighing 11 pounds, which were used in a series of impact tests on wire mesh, parallel wire, ordinary plate, case-hardened plate and laminated plate glass in a series of tests made by the Safety Glass Technical Committee. (Front cover photo shows how case-hardened broke when struck by dart dropped four feet.) Photographs, courtesy of Electrical Testing Laboratories.

made the deliberations all the more difficult because of the quite different points of view of the committee members interested.

It was brought out in the committee deliberations that there was no one kind of safety glass which was superior under all conditions known in service, that each of the three types considered (laminated, tempered and wired) had certain inherent advantages and disadvantages and that sufficient information was not at hand to indicate any very exact relation between kinds of accidents and protection from injury by ordinary glass.

Future Research Needed

It is apparent that this forms quite a field for future research, although it is probable that experience gained with glass approved under the provisions of the code, when adopted, will unquestionably result in alterations in the tentative provisions of the code from time to time as such alterations appear justified. From a practical standpoint this seems to be the more satisfactory way to handle the matter.

The subcommittee found it impossible to write any particular series of tests which would differentiate between acceptable and non-acceptable glass for all purposes and therefore it reported to the main committee for consideration groups of tests giving the applicant or testing laboratory certain options as to the series of tests to be performed.

It is hoped that the tentative code as now prepared will be found acceptable and will be speedily approved by letter ballot so that it may be submitted for use by the various state motor vehicle bureaus. Once uniformly adopted, the chances for much more rapid development in the art of manufacture appears likely, as experience in the different states crystallizes into sound conclusions.

One thing appears quite certain and that is that the proposed tentative code seems to offer the most logical common code upon which the various interests can meet.

British Approve Standard For Purity of Nickel Anodes

To ensure the purity of nickel anodes, the British Standards Institution has approved a British Standard Specification for Nickel Anodes (for Electroplating). The maximum amount of each purity is given; also the methods for their determination.

Copies of the standard may be borrowed from the American Standards Association Library.

Standards on Hose Couplings Published in One Pamphlet

A pamphlet in which are included the various standards on fire hose couplings, adopted by the National Fire Protection Association, has been published by the Association. The standards have also been adopted by the National Board of Fire Underwriters. The pamphlet is being distributed free of charge by the National Fire Protection Association, 60 Batterymarch Street, Boston.

Grade Labeling Is Essential, Official Tells Marketing Group

Present Sales Methods Fail; Consumers Now Demand Facts

A severe arraignment of the merchandising and selling philosophy of business, given by Ruth O'Brien, lawyer, and chief of the division of textiles and clothing, bureau of home economics, United States Department of Agriculture, was one feature of the annual meeting of the American Marketing Society in Atlantic City, December 4.

Miss O'Brien insisted that the consumer is fed up on ballyhoo and is hungry for facts about the necessities and luxuries of life.

"There is plenty of purchasing power in the country right now to put many more hundreds of thousands to work," she asserted, "but somehow our present selling methods are failing.

"Instead of so-called consumer education by advertising and distributing organizations building up an appreciation of merchandise, we are all aware of a steadily growing resistance on the part of consumers. They are digging in against the barrage, and putting up a counter-offensive of their own. Never before have we had so many consumer organizations, so much written and spoken about consumers' problems.

"These are not radical groups with impossible theories. They are everyday folk who have grown tired of meaningless, romantic words when they try to learn the difference between the dozens of makes of vacuum cleaners, the 4,500 brands of canned corn, the 85 or more trade-named electric washing machines.

"Thousands of farm women are considering consumer problems in organizations formerly devoted to cooking and sewing problems. Consumer problems now are part of the study programs of such high-standing professional organizations as the American Association of University Women, American Home Economics Association, League of Women Voters, and Parent-Teachers Association.

"These people are merely asking the same kind of information the business man insists on having before he buys his materials. They resent the fog that baffles and bewilders anyone trying to compare the myriad of brands.

"Suppose I want to buy a refrigerator. I don't want high-pressure sales talk about lovely finish and gadgets. I want facts. And I want them in writing—about temperature, operating cost, storage space. I read the advertisements. I find one make is the most colossal, superb, magnificent, supreme, streamlined refrigerator ever built. I see beautiful pictures of people in evening clothes, or read that Mrs. Percy Millionaire simply adores the XYZ refrigerator, or that it is approved by the Rubber Stamp Laboratory.

"There is, finally, one product whose new label states the usable storage space, shelf area, total cubic contents, ice meltage rate, mean cooling effect and temperature differential. I rejoice.

"After all, education is the training of the individual to search for facts and to act upon those facts. Consumers are tired of generalities and superlatives. The mere repetition of a brand name has lost its influence; too many of them scream from the radio and magazine pages. Approval services have multiplied like rabbits. Consumers are not stupid.

"How can facts be given to consumers? On some types of goods the easiest way is some kind of a grading system—but it does not help me to have Grade A stamped on an article if there is a Double A, a Triple A and possibly even more, and no hint of that on the label.

A Great Hunt

"One department store labels each of its household blankets, designating both its warmth and durability in an ABC rating scale, as determined by its testing laboratory. The customer can choose the combination of qualities that best suits her needs and pocketbook.

"The great mass of consumers are hunting for the article that best suits the particular use to which it is to be put. They have a businesslike attitude toward their expenditures. They glory in buying articles labeled B or C, if they know what they are getting and find it does the job for them at less cost. But they resent paying an A price for a C product. They appreciate definite

statements rather than fantastic statements like 'warm as a polar bear', or 'wears like iron', or 'soft, cuddling, and caressing'.

"Grade labeling will affect the brand which has been selling a C grade for an A price. It should. It will affect unethical advertising. It should. But it will help the reputable manufacturer and distributor.

"It will be hard to work out effective grading systems or other definite consumer guides for all goods. But it is not impossible. It is the next progressive step in retail merchandising."

Grocery Chain Stores Urge Grade Labeling

Executive Committee Recommends Inclusion of Descriptive Labeling Provisions in Canners Industry Code

THE executive committee of the Food and Grocery Chain Stores of America, Inc., has recommended that provisions for quality grade labeling, with brief modifying descriptions, be incorporated in the Canning Industry Code.

The committee also recommended that the Wholesale and Retail Food and Grocery Trade Codes be amended to forbid distribution of any goods not labeled as to grade.

In recommending the use of the grade system of labeling the committee rejected the so-called "descriptive" type of labeling which had been urged by a committee of canners.

Administration officials regarded the action of the chain stores as particularly significant and a long step forward in safeguarding the consumer. The association includes practically all of the grocery chain store organizations of the country except the Great Atlantic & Pacific Tea Co., which is now designing grade labels for its new pack. The group represented by the association controls more than 22,000 retail food outlets.

Briefly summarized, the committee's recommendations are as follows:

(1) Adoption of the standards for grades officially promulgated by the United States Department of Agriculture for tomatoes, cream-style corn, whole-grain corn, peas, snap beans, and grapefruit. (The five vegetable items named represent approximately half the pack of all canned vegetables.)

(2) The four grades of each of these products should be designated by the terms "Fancy," "Choice," "Standard," and "Substandard."

(3) One of these terms designating the grade should appear prominently on every label, together with a "key" to these grading terms which will make clear to the consumer the relative quality of each of these four grades.

(4) In addition, the size of the peas and snap beans should be stated on the label and in the case of grapefruit the legend, "Packed Without Added Sugar" should appear on the label where applicable.

(5) The President should appoint a permanent committee to continuously consider the whole problem of standards and labels. This committee would be responsible for recommending that additional products be added to the six named, as satisfactory standards for such products may be developed.

Further rules are also proposed forbidding the use of the words "fancy," "choice," etc., on a label except as referring to the recognized grade of the contents of the can.

The report, in full, follows:

"1. In addition to being large distributors of nationally advertised brands of canned goods, chain-store companies also have private brands which we completely control and which we have packed for us in accordance with our specifications and the labels for which we design and prepare. Therefore, chain-store companies are vitally interested in the question of the establishment of standards for grades and the labeling requirements of canned goods.

Problems Considered from All Angles

"2. Realizing the major importance and far-reaching effect of any decision that might be reached by the National Recovery Administration in connection with the establishment of standards for grades of canned goods and the labeling requirements necessary to make these standards effective and of practical value to the consumer, the Committee has endeavored to weigh carefully all angles of this problem before offering recommendations.

"3. The Committee recommends the adoption of the standards for grades officially promulgated prior to the date of this report by the Bureau of Agricultural Eco-

nomics of the United States Department of Agriculture for the following:

Vegetables

Tomatoes
Cream Style Corn
Whole-Grain Style Corn
Peas
Snap Beans

Fruits

Grapefruit

"4. The figures of the United States Census of Manufacturers for the year 1931, which is the most recent available, show that the five vegetable items named above represent approximately half of the pack of all canned vegetables. All canned vegetables are shown to constitute approximately ¾ of the total pack of all canned fruits and vegetables. Therefore, by recommending the adoption of standards for grades of only the above six products at this time, approximately ⅓ of the total pack of all canned goods has been covered so that although these recommendations are limited to six products they comprise a very great forward step in the establishment of standards for grades of all canned goods. It follows that these likewise cover items of greatest concern to the mass of consumers.

"5. The Committee further recommends that the President appoint a permanent committee to continuously consider this whole problem of standards and labels. This committee would consider standards for grades of additional products to be added to the above list as such standards may, from time to time, be developed. This committee would also recommend such changes in the established standards for grades and requirements for labeling as might appear to it to be advisable, from time to time, and would be responsible for keeping closely in touch with all developments affecting this phase of the industry.

Grade Nomenclature

"6. The Committee recommends that the four grades established by the United States Department of Agriculture for each of the above six products be denoted by the terms 'Fancy,' 'Choice,' 'Standard' and 'Substandard.' The use of the term 'Extra Standard' shall be discontinued. 'Substandard' shall designate merchandise falling below the standards established by the McNary-Mapes Amendment to the Federal Food and Drug Act.

Labeling Requirements

"7. In order to make clear to the consumer the relative quality of each of the above four grades, the Committee recommends that a 'key' to these four terms be printed on every label.

"8. The Committee believes that flavor, clearance of liquor, and similar qualities difficult of description in words that would carry any significance to the consumer, can best be covered by a single grade designation, namely, 'Fancy,' 'Choice,' etc.

"9. There are other statements, namely size in the case of peas and snap beans, and the desirability of packing some brands without the addition of sugar, as in the case of grapefruit, that would be of practical value to the consumer and that should therefore be made on the label in addition to the grade designation.

Code Amendments

"10. The Committee recommends that a provision be written into the Codes for the Wholesale and Retail Food and Grocery Trades, hereafter referred to as the Codes, making it a violation (subject to provisions of paragraph No. 19 below) of these Codes to sell or distribute any canned goods the labels of which do not carry one of the four terms 'Fancy,' 'Choice,' 'Standard' or 'Substandard' designating the grade and a 'key' to these grade designations making clear to the consumer the relative quality of each of the four grades.

"11. The Committee also recommends that the sieve size of peas be stated on the label by number and in addition the label should carry the legend: 'Peas are graded into six sizes, known as No. 1, 2, 3, 4, 5, and 6. No. 1 is the smallest.' If the peas have not been graded for size, the label should carry only the legend 'ungraded for size.'

"12. Similarly the size of beans should be given on the label by number, together with the legend: 'Snap beans are graded in seven sizes known as No. 0, 1, 2, 3, 4, 5, and 6. No. 0 is the smallest.' If the beans have not been graded for size the label should carry only the legend 'ungraded for size.'

"13. Provision should be made for the packing of grapefruit without the addition of sugar, in which case the label should bear the legend 'packed without added sugar.'

"14. The provision written into the Codes should require that all the above required legends be entirely surrounded by a solid line which will set them off completely from all other wording that is on the label.

"15. The position of this 'box' should be the same on all labels, namely to the right of the front of the label and adjacent to the top of the label. It is felt that consumers would soon become familiar with the position of these required legends designating the grade and could quickly refer to them. The front of the label is understood to mean the location of the main vignette, the main design on the label in cases where there is no vignette, or the point at which the brand name appears most prominently. This will vary with the design of each particular label, but it is felt that all labels are designed to be placed on the shelf in such a manner that a certain particular portion will be visible and the required labeling should be to the right of this portion and adjacent to the top of the label.

"16. Code provisions should require that the words 'Fancy,' 'Choice,' 'Standard' or 'Substandard,' designating the grade, be printed on the label in not smaller than 18 point type and that the word 'Grade' be printed in not smaller than 10 point type. All the wording of the 'key' should be of not smaller than 8 point type. Exceptions should be provided for small labels, making it optional to print the word designating the grade in type not smaller than the largest lettering appearing on the label, in which case the word 'Grade' might be printed in type not less than half the height of the word designating the grade.

Where Words Are to Be Used

"17. The use of the four words 'Fancy,' 'Choice, 'Standard' and 'Substandard' at any point on the label should be prohibited, except where they are used to refer to the grade of the contents. For example, the use of the words 'Fancy' and 'Choice' at any point on a 'Standard' label should be prohibited to avoid the possibility of confusing the consumer. The word 'Standard' might appear on a 'Standard' label as many times as the packer of the merchandise might desire. The Committee believes that the labeling provision to be written into the Codes should provide freedom from restriction as to any other wording on the label outside the required legends, provided that such wording does not constitute a mis-statement of fact. In other words, a certain product might have some qualities which would necessitate the label carrying a grade designation not higher than 'Standard' and yet that same product might have certain excellent qualities above the

requirements for that grade. The packer should not be restricted from stating such qualities on the label if he wishes to do so. The Committee does not feel that any packer should be restricted from making on the label any true statement of fact about the contents.

"18. The Committee recommends that it be made a violation of the Codes to place orders for the printing of labels that do not conform to the requirements of the Codes, and which labels are for merchandise not then packed, after a period of six months following the official insertion of these new provisions in the Codes. This provision would leave packers free to print additional labels that might be required for merchandise already packed, which it might not be possible to grade to meet the new code requirements. Labels for such merchandise could be printed without restriction, but labels for merchandise packed subsequent to six months following the official insertion of these new provisions in the Codes, would have to meet the requirements of these new provisions.

"19. The Committee recommends that it be made a violation of the Codes to sell merchandise to the consumer after 18 months following the promulgation of these new provisions that is not labeled in accordance with these new provisions. It is felt that this period of 18 months allows sufficient time in which merchandise may be disposed of under the present type labels.

Conclusion

"20. This report is offered by the Committee in a spirit of co-operation with the National Recovery Administration in an attempt to eliminate abuses in the industry, to protect the consumer by giving assurance that the contents of cans and packages conform to proper food standards and to provide the consumer with all information on the label that will be of practical value. It is the hope of the Committee that this report may be found to contain constructive suggestions which may be made effective within a minimum length of time.

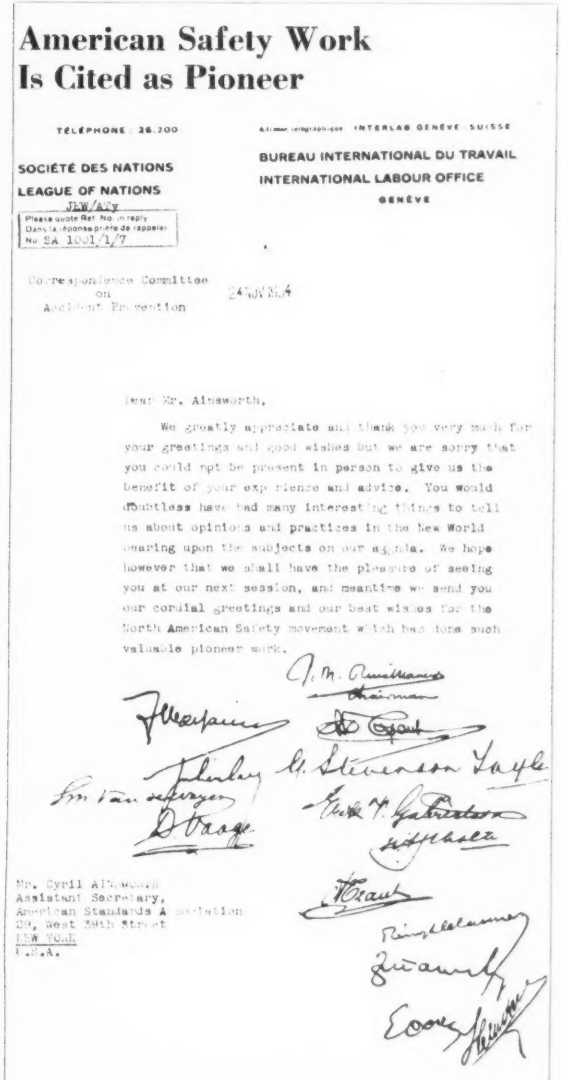
Respectfully submitted,

COMMITTEE ON STANDARDS AND LABELS.

The members of the committee are: Chairman, Warren H. Clarke, Kroger Grocery & Baking Co.: Arthur O'Keeffe, First National Stores, Inc.: William Park, American Stores Co.; W. L. Harrison, Safeway Stores, Inc.; R. H. Marshall, David Pender Grocery Co. and Southern Grocery Stores, Inc.: Charles G. Eden, H. C. Bohack, Inc.: and Mr. Massmann, ex officio.

This committee personally represents 16,000 stores doing an annual business in foods in excess of $700,000,000.

American Safety Work Is Cited as Pioneer



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Correspondence Committee on Accident Prevention

Dear Mr. Ainsworth,

We greatly appreciate and thank you very much for your greetings and good wishes but we are sorry that you could not be present in person to give us the benefit of your experience and advice. You would doubtless have had many interesting things to tell us about opinions and practices in the New World bearing upon the subjects on our agenda. We hope however that we shall have the pleasure of seeing you at our next session, and meantime we send you our cordial greetings and our best wishes for the North American Safety movement which has done such valuable pioneer work.

J. M. Anderson
Chairman

Mr. Cyril Ainsworth
Assistant Secretary,
American Standards Association
29, West 39th Street
New York
U.S.A.

Greetings from International Labor Office, League of Nations, Geneva, to Cyril Ainsworth, Assistant Secretary of the American Standards Association and a newly-appointed member of the Committee on Accident Prevention.

Recent Dust Explosions Prove Industrial Hazard

"Lessons from Some Recent Dust Explosions", an article published in the October, 1934, *Quarterly*, of the National Fire Protection Association, has been reprinted by the N.F.P.A. Copies can be bought from the National Fire Protection Association, 60 Batterymarch Street, Boston, or from the American Standards Association Library, for 25 cents each.

New Zealand Endorses British Standards

The New Zealand Standards Association has endorsed the British Standard Report on Metric Units of Volume and the Definitions of Gross and Net Calorific Values as New Zealand Standards. The standards are available through the office of the American Standards Association.

Standardization of Noise Meters Finds Wide Acceptance in Industry

by
Ralph G. McCurdy[1]

INCREASED interest in noise reduction, and the development work done by various industries for manufacturing quieter equipment to meet the public demand, have created the necessity for consistent noise measurements.

The standardization of methods of measurement and of units and scales for expressing the results are necessary first steps in arriving at standards for acceptable noise levels. These factors were important reasons which led to the organization of the Sectional Committee on Acoustical Measurements and Terminology of the American Standards Association.

As a result of the activities of its Subcommittee on Noise Measurements, standards for noise measurement were adopted provisionally by the sectional committee. In these standards the loudness level of the sound is specified as a measure of noise. It is contemplated that the noise shall be measured by aural comparison of its loudness with that of a reference tone and its loudness level expressed as the intensity level of the equally loud reference tone.

The standards include the specification of the 1000-cycle reference tone, the decibel scale, and reference levels for intensity and pressure and loudness level measurements. There was also recommended a group of curves termed loudness contours which indicate points of equal loudness of different single frequency tones together with a curve showing the relation between loudness and loudness level. These provisional standards were published in *Electrical Engineering* for November, 1933.

Limitations of Ear Tests

Measurements by the ear comparison method lead to many difficulties in experimental procedure. It is generally necessary to assemble a group of observers in order to obtain reasonably consistent results because of the large spread among the measurements made by individual observers.

A reference tone must be provided and provision made for presenting this to the observers so that they may compare its level with the level of the noise being measured without having both sounds affect the ear at the same time. The comparison is particularly difficult to make where the noise is varying from moment to moment.

When measuring in a complicated sound field where the noise may originate in several different points or be reflected from the boundaries of the room, measurements must generally be made at several points. By the ear comparison method the procedure becomes cumbersome and much time may be consumed.

Thus a need has naturally arisen for a meter which will eliminate as far as possible the personal equation and which can be moved readily from point to point so that the procedure for making noise measurements may be materially simplified and speeded up. A number of these meters have been made by different individuals and organizations and have been described in papers presented before the Institute.

There was a strong demand that efforts should be made by the sectional committee to extend the standards to cover use of noise meters. A Technical Committee on Noise Meters and Noise Levels, subordinate to the Committee on Noise Measurements, was appointed to look into this matter and recommend standards using as a basis the provisional standards already adopted by the sectional committee applying to the ear comparison measurements. This committee was assigned the further duty of acting as an advisory group to the various industries in order to facilitate the coordination of activities leading to the setting of standard noise levels.

Progress Is Reported

This technical committee has made substantial progress in agreeing on many of the characteristics of noise meters, such as the use of the decibel scale the zero of which corresponds to the loudness of a 1000-cycle free wave having an intensity of 10^{-16}

[1] Chairman, Technical Committee on Noise Meters and Noise Levels of the ASA Sectional Committee on Acoustical Measurements and Terminology. (Courtesy of *Electrical Engineering.*)

watts per square centimeter, the manner of combining the various single-frequency components and complex noises in the indicating instrument, and the dynamic characteristics of the indicating instrument. The loudness level contours which should be adopted as a basis for the frequency weighting in the amplifier have also been selected.

The problems which have given the committee difficulty and upon which agreement has not yet been reached have to do with the pickup microphone. Measurements of noise are usually made in complicated sound fields in which the noise may originate at several points or in which reflections from the room, enclosures, or other objects cause the sounds to impinge upon the microphone from many directions.

If the microphone response depends upon the angle of incidence of the sound wave and particularly if two meters are used having microphones with different directional characteristics, considerable divergence in the results may occur even though the meters are otherwise alike in their characteristics.

Appreciation of loudness is a complicated matter involving various physical and psychological reactions of human observers. These vary widely among different individuals, as is shown by the large spread among the measurements of a given noise made by ear by various observers. In constructing a noise meter it is necessary to make a number of approximations, endeavoring to approach as closely as practicable to the measurement of loudness level.

Undoubtedly there is a field for measurements by the ear comparison method where the noise is relatively steady and the necessity of assembling a group of observers in order to obtain consistent results is not an obstacle. It is recognized that comparison by ear is the fundamental standard.

Meters Widen Usefulness

However, the advantages of the meter method give it a wide field of usefulness. Experience indicates that good correlation may be obtained between readings of meters and loudness comparisons made by a group of observers on many types of noise. The portability of the meters and the rapidity with which readings may be taken, including observations at several points in the room or other premises where the noise is of interest, are material advantages.

They have been found very useful in isolating different types of noises, particularly those of short duration, when the noise in the room is made up of contributions from many different sources.

Demands which have been made for standards for noise meters indicate that they may have a wide application in industry in determining

Measuring and Defining Noises

An example of the American Standards Association's policy of having wide representation of all groups concerned in every project is shown in the Sectional Committee on Acoustical Measurements and Terminology (Z24):

Chairman, *V. O. Knudsen*, Acoustical Society of America
Secretary, *J. W. McNair*, ASA

Acoustical Society of America (Sponsor), *Harvey Fletcher, H. A. Frederick, V. O. Knudsen, D. C. Miller*
Acoustical Materials Association, *John S. Parkinson, Wallace Waterfall*
American Gas Association, *F. E. Vandaveer*
American Institute of Electrical Engineers, *P. L. Alger, C. R. Hanna, Bassett Jones, B. F. Bailey (alt.), Ellsworth D. Cook (alt.), H. M. Turner (alt.)*
American Institute of Physics, *Henry A. Barton*
American Medical Association, *Wendell C. Phillips*
American Otological Society, Inc., *Edmund P. Fowler*
The American Physical Society, *Henry A. Barton*
American Society for Testing Materials, *R. E. Hess*
American Society of Civil Engineers, *S. E. Slocum*
American Society of Heating and Ventilating Engineers, *Carl Ashley, P. D. Close (alt.)*
The American Society of Mechanical Engineers, *E. E. Free, R. V. Parsons, William Braid White, Paul H. Bilhuber (alt.), John S. Parkinson (alt.), Harry S. Read (alt.)*
American Transit Association, *H. S. Williams*
Canadian Engineering Standards Association, *George S. Field*
Electric Light and Power Group, *R. N. Conwell, J. O'R. Coleman (alt.)*
Institute of Radio Engineers, *Ellsworth D. Cook Irving Wolff*
International City Managers' Ass'n., *E. C. Rutz*
Music Industries Chamber of Commerce, *Paul H. Bilhuber*
National Association of Fan Manufacturers, *A. A. Criqui, J. L. Lennon (alt.)*
National Electrical Manufacturers Association, *L. W. Chubb, A. Pinto, J. J. Smith, R. Ehrenfeld (alt.), J. A. Jackson (alt.), Glenn Muffly (alt.)*
Radio Manufacturers Ass'n., *C. E. Brigham*
Research Council of the Academy of Motion Picture Arts and Sciences, *Nathan Levinson*
Society of Automotive Engineers, *R. F. Norris, Stephen J. Zand*
Society of Motion Picture Engineers, *Franklin L. Hunt, S. K. Wolf*
Telephone Group, *R. G. McCurdy, W. H. Martin, Arthur Bessey Smith, A. F. Rose (alt.), R. H. Manson (alt.)*
U. S. Bureau of Standards, *V. L. Chrisler*
U. S. Navy Department—Bureau of Engineering, *Officer in Charge of Specification Section, Design Division*
U. S. War Department, *James A. Code, Jr.*
Members-At-Large, *F. A. Firestone, P. E. Sabine, Leopold Stokowski, Wallace Waterfall, F. R. Watson*

whether machines and other manufactured apparatus meet specifications which may have been imposed as to their noise output. For this purpose the consistency of the meter method and its ability to distinguish with accuracy between different levels of noise of the same frequency composition are of great importance.

The committee is continuing its efforts to bring this work to completion and is hopeful of being able to make definite recommendations to the Sectional Committee on Standards for Noise Meters in the near future.

Color Identification Of Steel Bars Adopted

A Color Code for Marking Steel in Bars (flat, oval, hexagon, round, and square) has been adopted by the National Association of Purchasing Agents. It was developed by its Committee on Iron and Steel on the basis of the Society of Automotive Engineers' designation by number of the well-known kinds of steel.

The code gives color markings for S.A.E. carbon, screw stock, nickel, nickel-chromium, molybdenum, chromium, chromium-vanadium, silico-manganese and tungsten steels, and for stay-bolt steel. According to a statement made by the National Association of Purchasing Agent's office, the color code has been made part of the Federal Standard Stock Catalog and is mandatory in all departments of the government.

Some years ago, the suggestion was made to the American Standards Association that it would be desirable to develop a national standard system of marking steel bars. The ASA office canvassed a considerable number of organizations manufacturing or using steel bars, and found little enthusiasm for the proposed project. In the meantime the N.A.P.A. has found it possible to develop a color code for use by its own members which also has found recognition outside that association.

The chance of successfully developing an American Standard Code now appears to be better. The American Standards Association would be interested in any suggestions.

Reduction of Noises Increases Efficiency

Noise is accepted by the majority of persons without much protest even though they are more or less conscious of its unpleasant or harmful effects.

Improvement has followed a reduction in noise in work places. When the noise level was reduced from 45 decibels to 35 among a group of workers in an insurance office who were engaged in a variety of machine operations, a 12 per cent increase in output followed the reduction in the noise intensity.

Moving the assembly department of a temperature-regulator company from next a boiler shop to a quieter room resulted in a reduction of rejections at inspection from 75 per cent to 7 per cent, while in the same department the output increased from 80 to 110 assembled units per unit of time.

In another department a 12 per cent increase in output resulted from removing the noise of a large ventilating fan.

Lowering the noise level from 50 decibels to 35 decibels in the telephone operating room of a telegraph company resulted in a 42 per cent reduction in errors and a 3 per cent reduction in the cost per message.

These figures do not take into account the gain to the workers themselves from the relief following the improved noise conditions.

The work of the sectional committee on Noise Measurement is fundamental in connection with numerous other investigations on noise and its effects.

Mary Harriman Rumsey

Mrs. Mary Harriman Rumsey, widow of Charles Cary Rumsey, the sculptor, and daughter of the later E. H. Harriman, died December 18 in the Emergency Hospital, Washington, D. C. of injuries received on November 17 when her mount fell with her at a hunt near Middleburg, Va.

Appointed by President Roosevelt to the National Emergency Council, Mrs. Rumsey had been recognized in and out of the administration as the chief driving force and influence of the New Deal in its approach to consumer problems.

She was the only woman member of the Emergency Council besides Secretary Perkins, and had the title of adviser on consumer problems.

In addition to her governmental activities, Mrs. Rumsey was a leader in the cooperative movement, in the American Farm Foundation and the Eastern Livestock Cooperative Marketing Association. She was regarded as a genius for organization.

Meyer Is Elected President of ISA

During the conference in Stockholm held by the International Standards Association in September, 1934, Professor Karl Meyer, president of the national standardizing body in Denmark, was elected President of the ISA for the period 1935 to 1938 inclusive.

Vacancies in the Council of the ISA were also filled, so that the Council for the period just mentioned consists of one member for each of the following countries: Austria, Denmark, Hungary, Japan, Norway, Poland and Roumania.

British Standards Society Adopts Standard Temperature

The Chemical Divisional Council of the British Standards Institution has decided to adopt 20 C (International Temperature Scale) as the standard temperature for British Standard Volumetric Glassware.

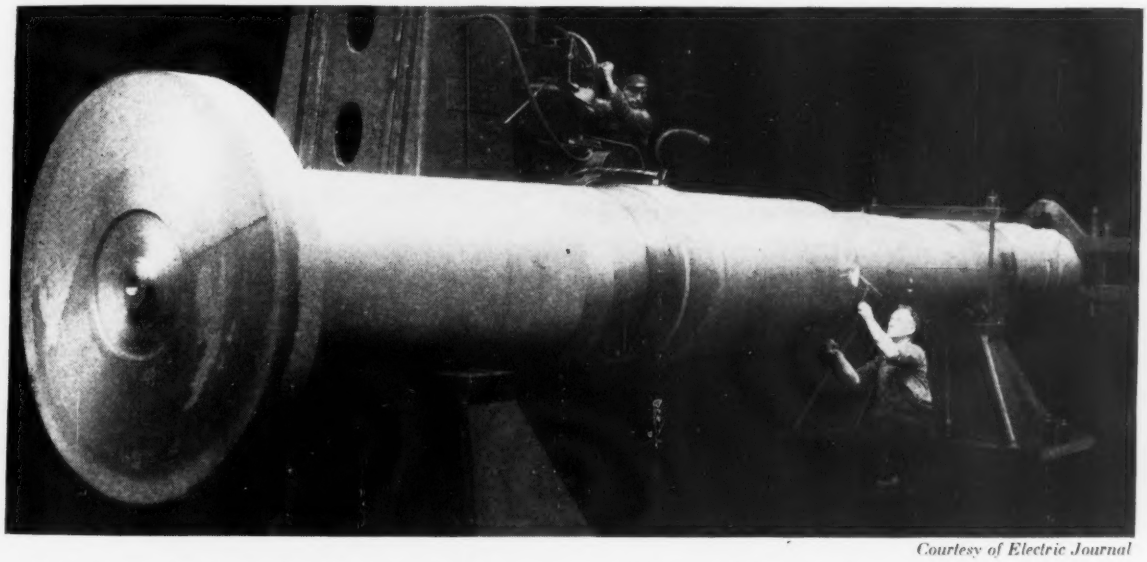
The decision to adopt this temperature was reached after careful consideration of current practice in the British Empire and other countries.

Reynolds Is Chairman Of Subcommittee on Sizes

H. B. Reynolds, Mechanical Engineer, Interborough Rapid Transit Company, New York, is chairman of the subcommittee on Gage Sizes and Mounting Dimensions of the ASA committee on Pressure and Vacuum Gages. Mr. Reynolds represents the American Transit Association.

M. D. Engle, Edison Illuminating Company, Boston, wrongly listed on page 274 of the December issue of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY as chairman of this subcommittee, is chairman of the Sectional Committee on Pressure and Vacuum Gages. A. W. Lenderoth, Crosby Steam Gage and Valve Company, New York, is secretary of the sectional committee.

American Standard Used for Huge Shaft

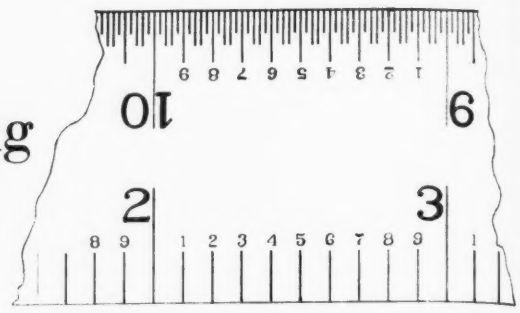


Courtesy of Electric Journal

This giant shaft, built for one of the 82,500 kva waterwheel generators at Boulder Dam, is being carefully machined and checked. The dimensions are impressive: length, 32 feet, 8 inches; diameter, 3 feet, 2 inches; flange diameter, 5 feet, 4¾ inches.

The shaft and flange diameters are made in accordance with the American Standard for Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units. (B49-1932). This size of shaft is one of the largest provided for in the standard, which covers 43 sizes ranging from 3½ inches to 40 inches.

Decimal Dimensioning Is Adopted by Ford[1]



In connection with the adoption of the decimal system by Ford, a new scale has been developed. Note that the finer divisions are fiftieths and that the marks for the second and third fifth are longer than for the first and fourth. Both of these features contribute to easy readability of the scale.

Elimination of Conventional Common Fraction System Simplifies Work of Draftsmen, Tool Designers, Tool Makers, and Inspectors

by

Athel F. Denham

Detroit Editor, Automotive Industries

SIMPLIFICATION of the work of draftsmen, tool designers, tool makers and inspectors by a material saving of time in specifying and checking of dimensions, has been a direct result of adoption by the Ford Motor Company of a decimal rather than fractional system for basic dimensioning. It applies at present to all parts, except for bores requiring the use of standard size (fractional dimension) reamers, etc. The adoption of this system represents, we believe, the first departure from conventional engineering practices along these lines in a major private corporation and certainly by any automobile manufacturer.

Since time immemorial common fractions have been the basis of engineering dimensioning in industry. The only major exception in this country, we believe, has been the United States Army Ordnance Department which works on a decimal basis. The adoption of "decimal fractions" instead of "common fractions" provides some of the advantages claimed for the metric system without presenting the objections raised by American manufacturers against general use of the metric system.

To appreciate the value of the Ford system it is only necessary to note that when any of the common fractions in use today must be changed into decimals—and such changes are necessary thousands of times a day in any large manufacturing plant—the resulting decimal is of cumbersome length. For instance, a fraction such as 7/64, to be expressed correctly would have to be carried out to six decimal places (0.109375) and similarly to greater or less degree with all common fractions in the English system. When it becomes necessary to add long columns of common fractions, as must be done repeatedly both in making drawings and in checking the accuracy of parts made from them, the complication and chances for error are obviously multiplied in addition to the complication involved through requiring the use of conversion tables, etc.

Simple to Use

Under the system adopted by the Ford Motor Company there are no such cumbersome dimensions. Only the simplest additions and subtractions are required. What is perhaps more important, it works along well with the old system, giving ample time for the change-over of blue-prints, again overcoming one of the objections to the adoption of any completely different system such as has been advocated in the past.

An important point in connection with the Ford system is that when tolerances require working to close dimensions, the figures definitely indicate this requirement by the addition of two or three digits to an already existing decimal, rather than an incongruous converted common fraction to or from which the working limits have been added or subtracted.

In other words, the system does not entail so much substitution of decimals for common frac-

[1] December 15, 1934. *Automotive Industries.*

tions as it does a complete change of thinking, now in terms of "tenths" instead of fractions. For easy application of this system, new scales have been developed with common fractions replaced by calibrations in tenths and fiftieths of an inch, the latter having been found preferable to 1/100ths due to the easier visibility and readability of that dimension. The sale is illustrated at the top of the preceding page.

Thus, while the dimensions are presented on all drawings in tenths and hundredths, it is only necessary to *read* sub-divisions marked off in "fiftieths," an easier division to see as a matter of fact, than the conventional 1/64 in. of customary scales. In turn, the use of fiftieths or multiples thereof compels every dimension requiring accuracy to such figures to end in an even number. This has a definite advantage since dimensions equi-spaced from center lines are always divisible by two without involving the addition of an extra decimal place.

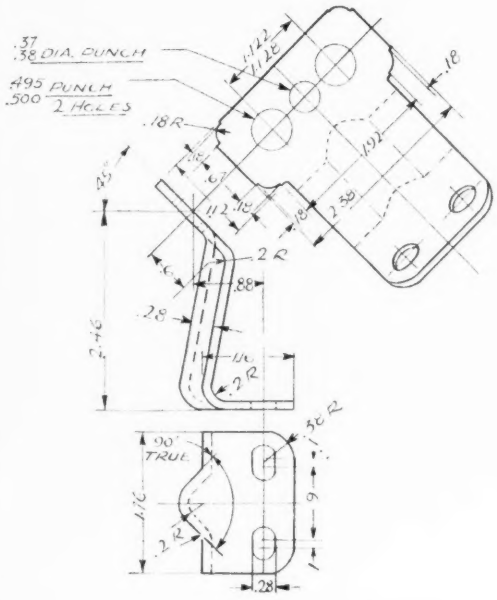
It will be noted that drawings using the Ford system will be less congested with figures and easier to read as shown in the example of a part for the electrical system in a reproduction of a Ford blueprint. This is in large part due to the fact that all dimensions for which a tenth is sufficiently accurate require only one digit as for instance, .6 or .8 inches. Where greater accuracy is required another decimal point is added, such as .10 or 1.90 and for still higher accuracy the third decimal place, such as .500 or 1.122 as on the drawing. The simplicity of the system in checking dimensions, etc., is shown by the following table. In the first column are given Ford decimals used for dimensioning, in the second column are represented the nearest equivalent fractions, whereas the third column gives the decimal equivalents of these fractions.

Ford Decimal	Common Fraction	Decimal of Existing Common Fraction
.02	1/64	.015625
.03	1/32	.03125
.05	3/64	.046875
.06	1/16	.0625
.08	5/64	.078125
.3	7/32	.28125
.46	15/32	.46875 etc.

It is reported, incidentally, that one or two tap and die manufacturers are already considering the production of such tools to decimal bases and if this were to develop along with decimal standards for drills and reamers, a complete conversion of all dimensioning to the decimal system could be effected. In the meantime all dimensions on Ford drawings are gradually being changed over to the new system of dimensioning.

The comparison in simplicity between the Ford decimal system and common fractions becomes even more favorable when it is required to determine dimensions through the use of trigonometric functions, wherein sines, co-sines, tangents, etc., of angles must be multiplied or divided by other dimensions. If fractionally expressed such dimensions would require complicated multiplications, materially simplified by the fewer number of figures resulting from the use of the Ford decimal system, reducing time required and chances for errors in the calculations.

A Ford blueprint showing how the Ford decimal system has been applied in the design division. Note that where interchangeability required adherence to former decimal equivalents of fractions no complications are introduced.



British Change Standard Regulations for Cranes

A revision of the British Standard Specifications for Derrick Cranes, incorporating new methods of calculating stresses, has been completed.

The British Building Regulations require that all cranes constructed before October, 1931, must be reconditioned to meet the British Standard specifications. Because of the large number of old cranes being used, and to avoid undue hardship to owners of safe cranes, the revision includes a paragraph providing that it is not necessary to alter the gearing provided it has the requisite factor of safety and that the wear is not excessive.

Prevent Accidents, Contractors Urge

The following resolution was passed at the 1934 annual convention of the Associated General Contractors of America, Inc., held in Chicago during the later part of October.

WHEREAS, current statistics show that the accident experience for the Construction Industry is worse than that reported for 27 other major industries; and

WHEREAS, under the present conditions of unemployment many men inexperienced in the hazards of construction are being given relief employment; and

WHEREAS, the Federal Government in its many divisions, bureaus, and departments, and also in its Code promulgation activities has particularly stressed and advocated accident prevention measures, thus giving Federal recognition to the importance and value of accident prevention work; now therefore

BE IT RESOLVED, that we, the Governing Board and Advisory Board of the Associated General Contractors of America, in regular session assembled October 22-23, 1934, Palmer House, Chicago, Illinois, do sincerely appeal to every member of the A.G.C. and the Construction Industry at large to energetically and wholeheartedly devote the necessary time, effort, and study in this matter of eliminating construction hazards from within our indutry; and

BE IT FURTHER RESOLVED, that we urge upon every member of the A.G.C. his participating in the Annual Safety Contests conducted by the A.G.C. to the end that interest in accident prevention work will be aroused and maintained, as well as providing, through the contest reports, valuable statistics on construction accidents.

British Set Standard Sizes For Concrete Pipes and Tubes

Recently approved British Standard Specifications for Cement Concrete Cylindrical Pipes and Tubes (not Reinforced) provide for nominal sizes from six inches upwards and include requirements as to quality and hydraulic pressure, crushing, and absorption tests.

ASA Committee Is Writing Standards for Transformers

Standards on five classes of apparatus—power and distribution transformers, instrument transformers, constant current transformers, voltage regulators of the transformer and induction type, and current limiting reactors—are being considered by the Sectional Committee on Transformers. V. M. Montsinger, chairman of the committee, reported activities of the subcommittees under the direction of his committee, to the Electrical Standards Committee, as follows:

Power and Distribution Transformers.—A draft prepared by this subcommittee incorporates the latest material available on this subject. Use was made in preparing the standards of material relating to transformers appearing in the N.E.M.A. Transformer Standards, the A.I.E.E. Standards on Transformers, Induction Regulators and Reactors, A.I.E.E. Standards on Instrument Transformers, and A.I.E.E. Standards on Constant Current Transformers.

Test Code.—The preliminary draft of the American Institute of Electrical Engineers' Transformer Test Code has been transferred to the Test Code subcommittee. Important changes are to be made and new material added to bring it up-to-date for approval by the ASA.

Operating Recommendations.—Recommendations for temperature operation of transformers are undergoing revision in the Operating Recommendation Subcommittee.

Instrument Transformers.—The Instrument Transformer Subcommittee recently completed a report describing American views and standards on instrument transformers for the benefit of United States National Committee delegates in replying to the International Electrotechnical Commission Document on Instrument Transformers. A revision to bring the American practice on instrument transformers up-to-date is now under way.

New Standard for Electric Signs Approved by British Institution

A new British Standard Specification for Electric Signs covers construction, electrical apparatus, and wiring of electric signs of box, or other forms using filament lamps and/or discharge tubes operating in conjunction with double-wound transformers, and auxiliary apparatus.

The American Standards Association Library has copies of the standard which can be borrowed or purchased.

Committee on Wires and Cables Active in Completing Standards

ELEVEN standard definitions and specifications have been prepared by the Sectional Committee on Wires and Cables and approved by the American Standards Association as American Standard, according to a report of the committee to its sponsor, the Electrical Standards Committee.

The principal business of the sectional committee during the past year, says F. M. Farmer, chairman, has been to receive the reports of the various technical committees working under its direction, and to assist in hastening the work of each of its subcommittees.

Technical Committee 1 on Definitions during the past year completed a report on tests and test methods in general use in this country for wires and cables. This report was for the use of the United States National Committee of the International Electrotechnical Commission. Copies are available from the American Standards Association office.

Technical Committee 2 on Conductors and Stranding cooperates very closely with the committee working on the same subject under the auspices of the American Society for Testing Materials. It is now working on a Standard Stranding Table for round conductors, which will include a reduction in the list of sizes expected to result in considerable economy. The committee has completed a proposed standard table, which is now being reviewed. A definite recommendation is expected soon.

Technical Committee 4 on Rubber Insulation has prepared a revision of the present approved American Standard for Code Grade rubber insulation (C8.11-1933) and of the American Standard Specifications for 30 Per Cent Rubber Insulation for Wire and Cable for General Purposes (C8d1-1928). Both of these revisions are being submitted to the sectional committee for its final approval.

The technical committee is cooperating with the American Society for Testing Materials' Committee on Rubber Products and with the Insulated Power Cable Engineers' Association in the development of specifications for rubber insulation for high voltages, 5,000 to the order of 15,000 volts.

Technical Committee 5 on Impregnated Paper Insulation is considering a revision of the American Standard for Impregnated Paper Insulation to bring it into line with the recent changes in the "Specifications for Impregnated Paper Insulated. Lead-Covered Cable" of the Association of Edison Illuminating Companies.

Technical Committee 6. Varnished Cloth Insulation. A specification for varnished cable insulation has been in draft form for some time but certain controversial matters have made progress on completion of the specification slow. A revision of this draft, based on specifications for varnished cambric insulated cable recently issued by the Insulated Power Cable Engineers' Association, is now under way.

Technical Committee 7 on Magnet Wire is making a survey to determine what revisions are necessary to bring up-to-date the three approved American Standards under the jurisdiction of this committee. The need for specifications for certain new types of magnet wire is also being investigated. This work is being done in close cooperation with a committee of the National Electrical Manufacturers' Association.

Technical Committee 8. Fibrous Coverings. Specifications for Braid Coverings prepared by this committee are now being balloted upon by the sectional committee. Specifications for Tree Wire Coverings have also been prepared and it is expected that they will be submitted to the sectional committee at its next meeting.

Technical Committee 9 on Metallic Coverings

The Electrical Standards Committee is responsible to the Standards Council of the American Standards Association for the orderly development of all electrical standardization work in the ASA. It reviews all standards submitted to the ASA before approval is given by the Standards Council and receives annual reports from the seven committees under its sponsorship.

The Electrical Standards Committee has 18 members representing 12 trade and technical associations and government departments in the electrical field.

has prepared several drafts of specifications for metallic coverings of various types but has encountered considerable difficulty in finding a basis upon which the necessary agreement could be reached. However, the last draft is now being circulated in the committee and it may be ready to submit to the sectional committee at its next meeting.

Technical Committee 12 on Weatherproof Wire has prepared a specification for the Utilities Research Commission type of weather-resisting wire, in addition to the specifications already approved as American Standard (C8k1-1932). It expects to submit the new specifications to the sectional committee at its next meeting.

Technical Committee 13 on Heat Resisting Wires is inactive at present because it finds no immediate need for standardization work on this type of wire.

One of the most important activities of the sectional committee has been a proposal to compile a book of "Standards for Wires and Cables Approved as American Standards", to be published together in book form. The committee is recommending this action with the idea that the standards will be more useful for the purpose for which they are intended—as purchase specifications for wires and cables—if they are published under one cover. The suggestion will be voted upon at the next meeting of the committee.

Favorable Votes Are Received On Canadian Electrical Code

A majority of favorable votes have been received by the Canadian Engineering Standards Association on Part I of the Canadian Electrical Code. It is expected that the Code will be published by the end of year, with the designation as Canadian Standard—1935.

Specifications for capacitors and outlet boxes have been approved by the Main Committee and will be published soon. Other items of Part II are under consideration, and considerable progress has been reported.

Comments are being received on drafts of Part III of the Canadian Electrical Code.

British Add to Series For Railway Signalling

The British Standards Institution has approved an addition to its series of specifications for railway signalling relays. The standard, Alternating-Current Line Relays (single-element, 2-position) for Railway Signalling Purposes, covers relays of the induction type, intended for use on railway signalling circuits not exceeding 250 volts.

Eleven New Standards Are Approved by ASA

The 11 standards approved by the American Standards Association as a result of the work of the Sectional Committee on Wires and Cables, and which the committee will recommend for publication in one volume, are:

Definitions and General Standards for Wires and Cables (C8a-1932) *Published by the American Institute of Electrical Engineers* (A.I.E.E. No. 30-Sept. 1932)

Specifications for Tinned, Soft or Annealed Copper Wire (C8b1-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. No. 60-Sept. 1928)

Specifications for Soft or Annealed Copper Wire (C8b2-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. No. 61-Sept. 1928)

Specifications for 30 Per Cent Rubber Insulation for Wires and Cables for General Purposes (C8d1-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 63-1928)

Specifications for Code Rubber Insulation for Wires and Cables for General Purposes (C8.11-1933) *Published by the American Standards Association (Mimeograph form)*

Specifications for Impregnated Paper Insulation for Lead-Covered Power Cables (C8.10-1928) *Published by the American Standards Association (Mimeograph form)*

Specifications for Cotton-Covered Round Copper Magnet Wire (C8j1-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 69-Sept. 1928)

Specifications for Silk-Covered Round Copper Magnet Wire (C8j2-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 70-Sept. 1928)

Specifications for Enameled Round Magnet Wire (C8j3-1928) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 71-Sept. 1928)

Specifications for Weatherproof Wires and Cables (C8k1-1932) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 72-1932)

Specifications for Heat-Resisting Wires and Cables (C8k2-1932) *Published by the American Institute of Electrical Engineers* (A.I.E.E. 73-1932)

Government Printing Office Issues Standard Paper Samples

The 1935 edition of the Standard Samples of Paper, issued by the United States Government Printing Office, is in the American Standards Association Library and can be borrowed from the ASA. The book contains specifications and samples of the paper being used in the public printing and binding carried on by the Government Printing Office.

A.S.T.M. Publishes Tentative Standards

The 1934 *Book of A.S.T.M. Tentative Standards*, just published by the American Society for Testing Materials, is the only volume containing all of the A.S.T.M. tentative specifications, methods of test, and definitions of terms covering engineering materials and the allied testing field. These tentative standards, issued as proposed standards, embody the latest ideas and practices, and find important applications throughout industry.

The 1934 edition (1250 pp) contains 236 tentative standards. Of these, 48 are included for the first time. Approximately 60 were revised this year and are given in their latest approved form. Ferrous and non-ferrous metals, concrete and masonry materials, paints, petroleum products and lubricants, road materials, rubber products, and textile materials are among the subjects covered by the proposed standards.

Among the new tentative specifications published for the first time in 1934 are standards for electric-fusion-welded steel pipe for high-temperature and high-pressure service; alloy-steel castings for valves, flanges and fittings for service at temperatures from 750 to 1100 F; and for the same temperature range, seamless alloy-steel pipe; sheet-copper silicon alloy; copper-silicon alloy rods, bars and shapes, and plates and sheets; also, magnesium-base alloy ingot for remelting, and magnesium-base alloy die castings.

In the cementitous, ceramic, and masonry field new standards cover portland cement mortars (compressive strength test), sodium silicate for curing concrete, ground fire clay, refractories for the construction of incinerators and structural clay tile (sampling and testing.)

Other specifications which have been included for the first time cover such important materials as fuel oils; various types of emulsified asphalts; woolen and worsted yarns; titanium barium pigment; titanium calcium pigment; zinc sulfide and high-zinc sulfide lithopone; insulated wire and cable (class A, 30 per cent Hevea rubber compound); vulcanized rubber (test for compression set); rubber compounds (test for abrasion resistance); creosote and creosote coal-tar solution.

Extensive revisions have been incorporated in the requirements for cold-rolled strip steel; black and hot-dipped zinc-coated welded and seamless steel pipe for ordinary uses; reinforced and non-reinforced concrete sewer pipe; timber piles; friction tape for general electrical use; and grease wool and allied fibers.

In addition to the 236 A.S.T.M. tentative standards, the 1934 *Book of Tentative Standards* includes all proposed revisions of A.S.T.M. standards, which are published for criticism before final adoption. Changes in 60 standards have been proposed.

Copies in cloth binding at $8.00 each, or in heavy paper cover, $7.00, may be obtained from A.S.T.M. headquarters, 260 So. Broad Street, Philadelphia, or may be ordered from the American Standards Association.

Committee Shows Hazards Of Flammable Liquids

A compilation showing fire-hazard properties of flammable liquids, gases, and volatile solids has been published by the Committee on Flammable Liquids of the National Fire Protection Association. The pamphlet constitutes Part 1 of the report of the Committee to the 1935 Annual Meeting of the Association.

The committee will welcome any additional data on the substances listed or on new materials. H. L. Miner, 6030 duPont Bldg., Wilmington, Del. is chairman.

Copies of the pamphlet can be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston, or from the office of the American Standards Association.

Dana Pierce

Dana Pierce of Highland Park, Ill., nationally known in fire and accident prevention work, died suddenly of a heart attack December 18 at Atlantic City. His age was 63.

He was president of the Underwriters Laboratories, Chicago, and of Underwriters Laboratories, Ltd., of Canada. He was graduated in 1892 from Amherst College, and served two terms as president of the National Fire Prevention Association, ending in 1928.

Mr. Pierce was active in the organization and early re-organization of the American Engineering Standards Committee (now the American Standards Association) in 1919, and was a member of the Standards Council for several years. For ten years he was chairman of the committee in charge of the National Electrical Code.

His wife was with him when he died. Also surviving is a step-son, Marston D. Young, in California.

New Zealand Committee Works on Building Code

A Building Code which it is expected will be suitable for adoption by local authorities is being developed by the New Zealand Building Code Committee.

SAFETY

Abrasive wheels, safety code (B7-1930)	$ .05
Aeronautic safety code (D1-1925)	1.50
Brakes and brake testing, automobile (D4-1927)	.05
Building construction and materials, fire tests (A2-1934)	.25
Coal handling equipment (M10-1928)	.25
Coal mine transportation (M15-1931)	.20
Coal mines	
bituminous, explosives in (M14-1930)	.25
electrical equipment in (M2-1926)	.05
rock dusting (M13-1925)	.25
Construction safety code (A10-1934)	2.00
Dust explosions, dust ignitions, prevention (nine standards in one pamphlet) (Z12)	.15
*Electrical code, national (C1-1933)	.05
*Elevators, dumbwaiters and escalators (A17-1931)	1.00
*Floor and wall openings, railings and toe boards (A12-1932)	.20
Forging and hot metal stamping (B24-1927)	.15
Foundries, protection of workers (B8-1932)	.20
Gas mask canisters, identification (K13-1930)	.05
Gas safety code (K2-1927)	.20
*Heads and eyes, protection of (X2-1922)	.10
*Ladders and stairs for mines (M12-1928)	.25
Laundry machinery and operations (Z8-1924)	.05
Lighting	
*factories, mills and other work places (A11-1930)	.20
schools (A23-1932)	.20
*Lightning, code for protection against (three standards in one pamphlet) (C5)	.15
Logging and sawmill safety code (B13-1924)	.60
Mines, metal, fire fighting equipment (M17-1930)	.25
Paper and pulp mills, safety code (P1-1925)	.15
Power presses, foot and hand presses (B11-1926)	.20
*Power transmission, mechanical (B15-1927)	.35
Refrigeration, mechanical (B9-1933)	.30
Rubber mills and calenders (B28a-1927)	.05
Textile safety code (L1-1929)	.05
Traffic signals, colors for (D3-1927)	.25
Window cleaning, safety code for (A39-1933)	.20
Woodworking plants, safety code (O1-1930)	.10

* Safety codes recommended in "Minimum Standards for the Safety and Health of Workers in Manufacturing Industries," Committee on Standards for Safety & Health for N.R.A. Codes, Appointed by Secretary of Labor Perkins.

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